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Prevalence of Postpartum Depression Among Palestinian Women in East Jerusalem In Relation to Demographic Variables

Futna Musa Yousef Shahwan

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Prevalence of Postpartum Depression Among Palestinian Women in East Jerusalem in Relation to Demographic Variables

Prepared by:
Futna Musa Yousef Shahwan

B.Sc: Social Work Al-Quds University Jerusalem

Supervisor:
Dr. Najah Al-Khatib

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Thesis Approval

Prevalence of Postpartum Depression Among Palestinian Women In East Jerusalem in Relation to Demographic Variables

Prepared by: Futna Musa Yousef Shahwan
Registration No: 20510201

Supervisor:
Dr. Najah Al-Khatib

Masters thesis submitted and accepted, Date: 15/6/2011

The names and signatures of the examining committee members are as follows:

Head of Committee: Dr. Najah Al-Khatib Signature.....

Internal Examiner : Prof. Taisir Abdallah Signature.....

External Examiner : Dr.Umaiyah Khammash Signature .....

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2011/1433

Dedication

To my late father and mother

To my husband and children

To my sisters and brothers

To my mother in law

To all who supported me and had belief in me

To all the Palestinian women

Declaration

I certify that this thesis submitted for the degree of Master is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed

Futna Musa Yousef Shahwan

15/6//2011

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Abstract:

The aim of the study was to determine the prevalence of Postpartum depression among a sample of Arab women living in East Jerusalem, and to investigate the correlation between a number of demographic factors and the development of PPD.

In order to obtain the study goals, cross-sectional study was conducted on a sample of 274 women, mothers of infants age between (1 month – 1 year), derived from four Mother and Child Health Centers in Jerusalem, 10% of the monthly attending mothers from each MCHC of the four. However, 2 of these centers were governmental the other 2 were non governmental.

The study was analyzed statistically using the SPSS, the researcher used various methods, such as frequencies, percentages, means, standard deviations as well as pearson and spearman correlation tests, and chi-square to find the correlation between the PPD prevalence and the variables in the study. The Multilinear Regression was used to find the strong predicting factors in the study affecting PPD among the participants in the study sample.

The findings of the study showed that the overall prevalence of PPD among the participant was (55.11%), of which (25.55%) were severely depressed while (29.56%) where moderately depressed. The findings of the study showed that there is a correlation between the prevalence of PPD and nine of the demographic variables, as well as eleven of the non demographic variables. Anyhow, it was shown in this study that the strongest predictors of PPD among Palestinian women were, number of children, number of deliveries, age at the first marriage, age at the first pregnancy, residence locality, participant's educational level, desire for pregnancy, participant's husband's educational level, participant's husband's labor force status, age, dwelling property and family income.

According to these results the study recommendations were as follow:
Raising marriage age among Palestinian women by legislation through policy makers, as well as raising the awareness in society of this kind of depression affecting women. Also it is recommended for health professionals to highlight this kind of depression among women

by scanning them using the EPDS tool, as well as using different kind of interventions whether primary, secondary or tertiary. More importantly, it is recommended that further researcher be conducted in the future.

Definitions

DSM IV TR	Diagnostic and Statistic Manual of Mental Disorders, fourth Edition, Text Revision, is published by the American Psychiatric Association and provides a common language and standard criteria for the classification of mental disorders.
ICD 10	International Classification of Disease, is a coding of diseases, signs and symptoms, abnormal findings, complaints, social circumstances and external causes of injury or diseases, as classified by the World Health Organization ,WHO 1992
Minor Depression	A period of at least 2 weeks of depressive symptoms but with fewer than the five items to be fulfilled, see DSM-IV- TR for complete criteria.
Postpartum Blues (Maternity blues)	Maternity blues is a common, benign, transitory condition occurring in the first days after delivery.
Postpartum Depression	A major depression with onset within 4 weeks after delivery (DSM-IV) or within 6 weeks after delivery (ICD-10)
Postpartum Psychosis	Postpartum psychosis is a severe and rare disorder with an acute onset after a symptom-free phase. Most postpartum psychosis begin within the first 3 weeks after delivery.

Edinburgh Postnatal Depression Scale	Is a self-rating scale developed to screen for postnatal depression, consists of 10 questions, each question has 4 options, with lowest score 0 and highest score 30.
Postnatal Depression	British English term for Postpartum Depression.
Northern part of Jerusalem	Includes Beit Hanina, Shu'fat Refugees Camp, Shu'fat, Al'Isawiya.
Southern Part of Jerusalem	Includes At-Tur, Ash shayah, Ras Al-Amoud), Silwan, Ath-Thuri, Jabal Al-Mukabbir, As-Sawahira Al-Gharbiya, Beit Safafa, Sharafat, Sur Bahir, Um Tuba
Middle Part of Jerusalem	Includes Jerusalem "Al-Quds" Sheikh Jarrah, Wadi Al-Joz, Bab Al-Sahira, Suwwana,

Abbreviations

PPD	Post Partum Depression
PND	Post Natal Depression (British English)
ICD 10	International Classification of Diseases, WHO, 1992
DSM VI TR	Diagnostic and Statistic Manual of Mental Disorder, fourth edition, Text Revision (2000).
EPDS	Edinburgh Postnatal Depression Scale
BDI	Beck Depression Inventory
SRQ	Self-Reporting Questionnaire
MSPSS	Multidimential Scale of Perseived Social Support
PIQ	Personal Information Questionnaire
IDD	Inventory to Diagnose Depression
ZSR	Zung Self-Rating depression scale
PSE	Present State Examination
UNRWA	United Nations Relief and Works Agency
ACOG	American Congress of Obstetricians and Gynecologists
IPT	Interpersonal Psychotherapy
ECT	Electroconvulsive therapy

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Chapter One

Introduction

1.1 Background

Throughout a woman's life, depression becomes a more significant risk at different times, such as during the postpartum or the pre-menopausal period (Keita, 2007). However, the general public and medical professionals tend to think of pregnancy as a time of emotional well-being for women and their families. While this may be true for most, a substantial number of women may experience distressing symptoms that can make pregnancy and motherhood one of the most disturbing experiences of their lives (Lusskin et al., 2007).

Untreated postpartum depression can have adverse long-term effects. For the mother, the episode can be the precursor of chronic recurrent depression. For her children, a mother's ongoing depression can contribute to emotional, behavioral, cognitive and interpersonal problems in later life (Jacobsen, 1999).

In the mid-nineteenth century, studies highlighted certain psychotic episodes but did not label them as postpartum depression (henceforth, PPD) nor were they identified as a separate illness (Regus, 2007). The first good description of postpartum mental illness was written in 1858 by a French psychiatrist called Louis Marcė (Josefsson et al., 2007). However, the postnatal period is well established as an increased time of risk for the development of serious mood disorders. There are three common forms of postpartum affective illness: the blues (baby blues, maternity blues), postpartum (or postnatal) depression and puerperal (postpartum or postnatal) psychosis each of which differs in its

prevalence, clinical presentation, and management. Postpartum non-psychotic depression is the most common complication of childbearing affecting approximately 10-15% of women and as such represents a considerable public health problem affecting women and their families (Warner et al., 1996). The effects of postnatal depression on the mother, her marital relationship, and her children make it an important condition to diagnose, treat and prevent (Robinson & Stewart, 2001). At present, postpartum depression is not classified as a separate disease in its own right: it is diagnosed as part of affective or mood disorders in both DSM-IV (American Psychiatric Association, 1994) and ICD-10 (World Health Organization, 1993). However, the Diagnostic and Statistical Manual of Mental Disorders IV TR defined postpartum depression (PPD) as a major depressive episode that occurs within four weeks after delivery without psychotic features (APA, 2000).

Depressive episodes are characterized by a number of symptoms including a depressed or sad mood, a marked loss of interest in virtually all activities, a significant weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or guilt, a diminished ability to think or concentrate, and recurrent thoughts of death APA, (2000).

Physical symptoms range from lack of sleep, no energy, and appetite changes to headaches, chest pains, heart palpitations, and hyperventilating (Regus, 2007). However, emotional symptoms run the gamut from anxiety and excessive worry, confusion, sadness, and feeling overwhelmed or inadequate as a parent to hopelessness, thoughts of suicide, bizarre hallucinations and incoherence (Regus, 2007). Any how the behavioral symptoms range from crying, oversensitivity and irritability to panic attacks, hostility and paranoia (Regus, 2007).

Undetected PPD affects the mother, her infant, her family and further affects the society through illness, social dysfunction, death, and the cost of medical services (Sadeghi, et al., 2006).

Children whose mothers experience PPD may have increased behavioral, cognitive and emotional difficulties (Bloch et al., 2005). A population-based birth cohort study conducted in 18 US cities found that maternal depression and anxiety in the first

postpartum year were associated with child behavioral problems at age 3 years, including aggression, anxiety, depressed behavior, and (or) inattention–hyperactivity (Lusskin et al., 2007).

Beck (2001) has conducted a meta-analysis of predictors of PPD. She found that the following 13 factors were significant predictors of PPD: prenatal depression, low self-esteem, childcare stress, prenatal anxiety, life stress, low social support, poor marital relationship, and history of previous depression, infant temperament problems, maternity blues, being a single parent, low socioeconomic status and unplanned or unwanted pregnancy (Najafi, et al., 2007). However, four factors are consistently found to relate to PPD: one is the lack of social support, especially spousal support (Gjedingen and Chaloner, 1994), another is prior history of depression and other emotional problems (Wilson et al, 1996) and obstetric and infant problems (Campbell and Cohn 1991).

Different PPD prevalence's were reported among different women in various countries. Postpartum depression affects approximately 10-15% of all mothers in Western societies (Kumar & Robson, 1984). Its prevalence was 16% in Zimbabwean women (Nhiwatiwa and Patel, 1998), and 37.7% in South African women (Cooper et al, 1999). Moreover, in Goan in India, PPD prevalence among women was 11.2% (Patel et al, 2002) and the reported incidence of postpartum depression according to Chandran & Tharyan, (2002) was 11%. However, Jadresic et al., (1992) reported 36.7% PPD occurrence in Chile. The rates of 7.7 - 14% were assessed during the 9-12 weeks postpartum (Cooper and Campbell, 1988).

Among Arab women, recent epidemiological inquiries have reported prevalence rates of 15.8% for postpartum depression Ghubash & Abou-Saleh, (1997). As for Chaaya et al., (2002) who had studied the prevalence of PPD and its determinants in Lebanon reported the prevalence of PPD 21% of postpartum depression.

Postpartum depression rates range from 5% in Arhus, Denmark and Jerusalem in Israel to 36.7% in Santiago, Chile (Tannous, 2008). An interesting study of PPD conducted in Israel showed that the rate of postpartum depression was higher among Arab women (24.7%) compared to Jewish women (5.5%) (Tsanani-Eilat, et al., 2006).

A major part of prevention consists of awareness of the risk factors. In addition, the

medical community can play a key role in identifying and treating postpartum depression (Sadeghi, et al., 2006). Knowledge of these factors may help identify those who are at a higher risk and can benefit from early professional help (Bloch et al, 2005).

The significance of the current study was to explore the prevalence rate of PPD among Arab Palestinian women living in East Jerusalem inside the Israeli separation wall, according to some demographic variables since it hasn't been explored yet according to the researcher's knowledge. Hence, exploring the prevalence of PPD and its associated factors among Palestinian women would identify those who are at high risk and give them the opportunity to get early help.

1.2 Statement of the Problem

The study investigates the prevalence rate of postpartum depression among Palestinian women living in East Jerusalem in relation to demographic variables.

1.3 Justification of the Study

- Most of the research on PPD has been carried out in Western countries and only a few recent studies have been conducted in the developing world (Najafi, et al., 2007).
- The present study is one of very few looking at PPD among women in the Arab world and Middle East region (as far as the researcher knows). More specifically, this is the first study that addresses postpartum depression as a disorder, assesses its prevalence, and highlights its predictors among Palestinian women in East Jerusalem.
- As for Palestine, few studies have been conducted, using different methodologies, objectives and settings. To the best of the researcher's knowledge only two studies have been conducted on Palestinian women: Sammour, (2002) and more recently Abdallah, (2007).
- Usually, pre and post delivery care focuses on women's medical and obstetrical problems as well as the infant's health; consequently, the mothers' psychological needs are rarely considered.

1.4 Aim of the study and its objectives

1.4.1 Aim of the study:

The overall aim of the study is to determine the prevalence of postpartum depression among a sample of Palestinian women living in East Jerusalem (inside the separation wall) and to investigate the correlation between a number of demographic factors and the development of PPD.

1.4.2 Objectives of the study:

- To assess the prevalence of postpartum depression among Palestinian women in East Jerusalem.
- To investigate the prevalence of PPD according to the following demographic variables: age, marital status, residence locality, dwelling property, family type, educational level of participants, participant's labor force status, participant's labor force after delivery and family income.
- To investigate the prevalence of PPD in relation to the non demographic variables of this study which are: age at first marriage, age at first pregnancy, number of children, number of deliveries, educational level of Participants husband, labor force status of participants husband, desire for pregnancy, pregnancy planning, nature of delivery, age of last infant, gender of last infant and twins, number of rooms, and number of bathrooms.

1.5 Questions of the study:

Question One:

What is the prevalence of postpartum depression among Palestinian women in East Jerusalem?

Question Two:

Is there an association between the prevalence of postpartum depression and the different demographic variables in this study at 0.05 level of significance?

Question Three:

Is there an association between the prevalence of postpartum depression and the other variables in this study at 0.05 level of significance?

Question Four:

What are the most significant risk factors of postpartum depression according to this study?

1.6 Hypotheses of the study

There are two main hypotheses in this study:

Hypothesis one:

There is no significant difference in the prevalence of PPD among Palestinian women in East Jerusalem at 0.05 level of significance.

Hypothesis two:

There is no correlation between the prevalence of PPD and the study variables at the 0.05 level of significance.

1.7 Limitations of the study:

Place: Mother and Child Health Centers in East Jerusalem inside the surrounding Political wall.

Time: The results of this study are in 2010-2011.

Participants: Mothers of infants whose age between 1-12 months in the time of recruitment and data collection.

1.8 Definition of Terms

Prevalence:

Refers to the number of cases (of a disease) present during a specified period of time.

(O'Hara & Zekoski, 1988)

Postpartum Depression

A major depressive episode described as being a mood disorder that lasts for at least two weeks and represents a change from previous functioning (APA, 2000).

East Jerusalem

Includes the following localities: Beit Hanina, Shu'fat Refugees Camp, Shu'fat, Al-'Isawiya, Sheikh Jarrah, Wadi Al-Joz, Bab Al-Sahira, Al-Suwwana, At-Tur, Ash-Shayah, Ras Al-Amoud), Silwan, Ath-Thuri, Jabal Al-Mukabbir, As-Sawahira Al-Gharbiya, Beit Safafa, Sharafat, Sur Bahir, Um Tuba and Kufr 'Aqab. (PCBS, 2007).

Childbearing Age:

The period in a woman's life between puberty and menopause, which is according to the current study is between the age (15-49)

Chapter Two

Literature Review

2.1 Introduction:

This chapter presents the conceptual framework of the current study as well as, the theoretical perspectives and previous studies.

2.2 Conceptual Framework

Pregnancy and childbirth are complex events, packed with physical and psychological incidents as well as a profound biological, social and emotional transition. Although reactions of anxiety and sadness are common during pregnancy, most women pass these transitions without major psychopathology (Dennis , 2003).

The postpartum period is considered as an increased time of risk of the development of serious mood disorder (Stewart et al., 2003). However, childbirth represents for women a time of great vulnerability to becoming mentally unwell, with postpartum mood disorders representing one of the most frequent forms of maternal morbidity following delivery. Affective disorders following childbirth range in severity from the early "maternity blues" to postpartum psychosis, a serious state affecting mothers and usually requiring hospitalization. Along this spectrum is postpartum depression (Dennis , 2003).

The association between the postpartum period and mental disturbances has been noted since the time of Hippocrates. Woman are at increased risk of developing some forms of psychiatric illness during the puerperium (Stewart et al., 2003).

In the literature, three categories of puerperal mental disturbances are described in relation to severity: maternity blues, postpartum depression and postpartum psychosis.

2.2.1 Postpartum blues (Maternity blues):

Maternity blues is a common, benign**,** transitory condition occurring in the first days after delivery. However, it typically begins 3-4 days after delivery and peaks on days 4-5. Characteristic symptoms are crying, confusion, anxiety, insomnia and dysphoria. The symptoms last from a few hours to a couple of days. It has few negative consequences and does not require treatment. Biological and hormonal factors are the most likely major contributors (Andrew-Fike , 1999).

2.2.2. Postpartum Depression:

Along this spectrum (Maternity blues - postpartum psychosis) is the postpartum depression (PPD). Postpartum depression is the most common complication of childbearing and as such represents a considerable public health problem affecting women and their families (Sewart et al., 2003) Postpartum depression is a condition characterized by a persisted experience of sadness or a diminished ability to experience pleasure, irritability, feelings of low self esteem, anxiety, a tendency to brood over the infant's health and well-being, fatigue, as well as alterations in sleep patterns and appetite. The onset of PPD is usually seen after the fourth week after birth but it may appear up to the end of the first year after birth (Tannous et al., 2008).

History of Postpartum depression has been recognized since ancient times. The connection between childbirth and psychiatric illness has been well recognized (Hamilton, 1982). However, mental disturbance following childbirth was first mentioned by Hippocrates (approx. 400 BC) (Josefsson, 2007). Hippocrates described "puerperal fever" theorizing

that suppressed lochial discharge was transported to the brain, where it produced "agitation, delirium and attacks of mania" (Hurtle, 1995).

In the mid-19th century studies again highlighted psychotic episodes but did not label PPD as a separate illness (Regus, 2007). However, the first good description of postpartum mental illness was written by a French psychiatrist, Louis Victor Marce', in 1858 (Josefsson, 2007).

Additionally, Marce` specifically delineates accounts of puerperal psychosis and depression in his 18th century Treatise on Insanity in Pregnant and Lactating Women (Steiner, 1990) Moreover, by 1858, Marce` had published a definitive study, "Traits de la Folie des Femme Enceinte", and linking negative emotional reactions with childbirth. Other descriptions have turned up from time to time since modern scientific research began in 1838 in France (Sammour, 2002).

There are two main classification systems used within psychiatry: The American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders in its fourth edition TR (DSM IV-TR), and the 10th edition of the International Classification of Disease, (ICD10), published by the World Health Organization (World Health Organization, 1993).

According to DSM-IV-TR criteria (American Psychiatric Association, 2000), PPD is a subtype of major depression that includes clinical manifestations of depressed mood or anhedonia (decreased experience of pleasure in usual pleasurable experiences) plus four or more (or three or more if depressed mood and anhedonia are both present) of the following symptoms: weight or appetite disturbances, sleep disturbances, psychomotor disturbances (agitation or psychomotor retardation), fatigue or loss of energy, difficulty concentrating, feeling of worthlessness or guilt, and recurrent thoughts of death (APA, 2000).

Within DSM-IV-TR, there is a specifier 'with postpartum onset' to identify affective or brief psychotic episodes that occur during the postpartum period: an episode is specified as having a postpartum onset if it occurs within the first 4 weeks after delivery (American

Psychiatric Association, 2000). While, In ICD-10, the onset if it occurs within the first 6 weeks after delivery (WHO, 1993).

The Marci Society, an international organization for the study of psychiatric illness related to childbearing, recognizes the time of vulnerability for postpartum depression as one year after delivery (Parry & Haynes 2000).

Finally, in Anglo-American literature the definition of postpartum depression is often used in a wider concept including both major and minor depressions, as a minor depression may be a potentially severe disorder when occurring in the postpartum period (Josefsson, 2003).

2.2.3 Postpartum Psychosis:

The most severe form of puerperal mental disturbances is the postpartum psychosis; it is a severe and rare disorder with an acute onset after a symptom-free phase. Most postpartum psychosis begins within the first 3 weeks after delivery. Symptoms are often seen as sleep disturbances, hypomania and irritability. Delusions, hallucinations and gross impairment in functioning are other forms of symptoms. Affective symptoms are most prominent. The prevailing view is that this disorder is biologically mediated (Andrew-Fike , 1999).

2.3 Prevalence

Women have different biologic makeup, life experiences, and coping mechanisms. Therefore, some women have postpartum depression and others do not. These factors can lead to variations in prevalence and incidence rates that have been reported from different countries, The American Congress of Obstetricians and Gynecologists, (ACOG), (2010).

The prevalence of postpartum depression is currently considered to be 10-15%. Most studies were performed with a brief unidimensional instruments (mostly the Edinburgh Postnatal Depression Scale (EPDS) which focus on depression and not on other symptoms and disorders. Most cited studies were conducted in Western economically developed countries (Halbreich & Karkun, 2002).

Postpartum depression is a major health issue for many women. A meta-analysis of 59 studies suggests that approximately 13% of women experience postpartum depression with the inception rate greatest in the first 12 weeks postpartum (Registered Nurses' Association of Ontario, April, 2005). It is estimated that PPD affects 10% to 15% of women, and its prevalence ranges from 5% to 20% (Grigoriadis and Ravitz , 2007**;** Zlotnick et al, 2001).

Halbriech and Karkun (2002) reviewed the literature on prevalence of postpartum depression and depressive symptoms in a wide range of countries. One hundred forty three studies were identified reporting prevalence in 40 countries. It is demonstrated that there is a wide range of reported prevalence of PPD ranging from almost 0% to almost 60%. In some countries like Singapore, Malta, Malaysia, Austria and Denmark there are few reports of PPD or postpartum depressive symptoms, whereas in other countries (e.g. Brazil, Guyana, Costa Rica, Italy, Chile, South Africa, Taiwan and Korea) reported postpartum depressive symptoms are very prevalent (Halbreich & Karkun, 2002).

There is some controversy about whether rates of depression increase after delivery, and whether postpartum depression is a distinct entity from non-postpartum depression. A British case-control study of mothers from 4 general practices found a 3-fold higher incidence of depression within 5 weeks after childbirth. Similarly, a Norwegian study comparing postpartum with non-postpartum women found a 1.8-fold greater risk for depression in postpartum women (Gjerdingen and Yawn, 2007). However, Prevalence of postpartum depression in Israel's sample in first of second postpartum day 9.9-22.3 and after 6 to 12 weeks later prevalence was 5.2-12.4% (Fisch et al, 1997; Nevertheless, The prevalence of early postpartum in Dubai in United Arab Emirates was 24% according to the Reporting Questionnaire (SRQ) and 18% according to the Edinburgh Postnatal Depression Scale (EPDS) on day 7 after delivery (Ghubash and Abou-Saleh, 1997)**.**on the other hand, the Prevalence of postpartum depression and associated factors in Santiago, Chile would be 36.7% (Jadresic et al., 1992).

2.4 Symptomology:

The signs and symptoms of postpartum depression are generally the same as those associated with major depression occurring at other times. (Stewart et al., 2003)

Postpartum depression which is classified as a depressive condition that often exhibits the disabling symptoms of dysphoria, insomnia, confusion, anxiety, guilt, and suicidal ideation. Frequently exacerbating these indicators are low self-esteem, inability to cope, negative maternal attitudes, and loneliness. Residual depressive symptoms are common will remain clinically depressed at 6 months, (Andrew-Fike 1999);(Dennis , 2003).

An estimated 25% of women with untreated PPD will experience clinical depression that continues past the first year postpartum (Andrew-Fike , 1999); (Dennis , 2003).

At present, postpartum depression is not classified as a separate disease in its own right: it is diagnosed as part of affective or mood disorder in both DSM-IV (APA, 2000) and the ICD 10, World Health Organization (1993). There is a specifier "with postpartum onset" to identify affective or brief psychotic episodes that occur during the postpartum period. According to the American Psychiatric Association, 2000). While in the ICD 10, the episode must be diagnosed within a main diagnostic category with the specifier to indicate the association with the puerperium. (World Health Organization, 1993).

The symptoms of postpartum depression are the same symptoms required to meet DSM-IV TR criteria for a major depressive episode (Appendice 2.1).

According to Kruckman and Smith (2000)**,** symptoms fall into physical, emotional, and behavioral categories and vary by severity of PPD. Symptoms of the baby blues are mild and last a few days to a few weeks, whereas postpartum depression is marked by longer periods of depression.

2.4.1 Physical symptoms:

Physical symptoms range from lack of sleep, no energy, and appetite changes to headaches, chest pains, heart palpitations, and hyperventilating (Regus, 2007).
It is worth mentioning that physical symptoms such as frequent headaches, rapid heartbeat, numbness, shakiness, dizziness and mild shortness of breath suggest anxiety. Postpartum anxiety disorder is a separate disorder from postpartum depression, but the two often occur together (Frank , 2005).

2.4.2 Emotional symptoms:

Emotional symptoms run the gamut from anxiety and excessive worry, confusion, sadness, and feeling overwhelmed or inadequate as a parent to hopelessness, thoughts of suicide, bizarre hallucinations and incoherence (Regus, 2007).

2.4.3 Behavioral symptoms

Behavioral symptoms range from crying, oversensitivity, and irritability to panic attacks, hostility, and paranoia. Postpartum psychosis is the most severe, with symptoms that may include extreme confusion, loss of memory, inability to function, and possible harm to infant or self, (Regus,2007). However, postpartum depression usually resolves spontaneously after a couple of months but may persist in up to 25% of cases one year after delivery if untreated, Brockington, (1996). There is also 30-50% risk of relapse in future pregnancies, Cooper & Murray, (1995); Weismann & Olfson, (1995).

Most women suffering from PND do not receive any form of treatment and may remain depressed for up to a year after delivery (Tannous et al., 2008).

2.5 Etiology:

Postpartum depression is a serious public health problem. It is associated with numerous maternal and child medical and psychosocial problems (Kabir, Sheeder, Kelly, 2008). Postpartum depression is likely to result from body, mind, and lifestyle factors

combined. Because no two women have the same biologic makeup, life experiences and same magnitude of coping mechanisms; some women have postpartum depression and others do not (The American Congress of Obstetricians and Gynecologists, ACOG), (2010). So far, there are no clear and evident bio-chemical aspects or causes of PPD. However, investigators have looked for differences in natural history or recurrence rates that would suggest and make it clear to understand the pathological nature of postpartum depression; different risk factors and etiological aspects have been suggested (Gjerdingen and Yawn, 2007). Yet, a variety of explanations have been suggested to explain postpartum depression in women, including biological, psychological, social and cultural forces (Merrit, et al., 2001).

Studies looking for biochemical associations with postpartum depression such as thyroid antibodies are interesting but seem to identify only a small group of women who will develop postpartum depression. Similarly, Estrogen and estrogesterone fluctuations have not been shown to predict or follow postpartum depression. Recent studies investigating a broader spectrum of hormones seem promising, but are unlikely to provide clinically useful biochemical causal evidence (Gjerdingen & Yawn, 2007); (Merrit, et al., 2001). Such information was reported by other investigators; the rapid decline in the levels of reproductive hormones that occurs after delivery is believed to contribute to the development of depression in susceptible women. However, such information was not supported by many studies (Wisner, et al., 2001).

Although it is possible to attribute postpartum depression to hormonal decline, several other factors may predispose women to this condition. Stressful life events, past episodes of depression (not necessarily related to childbearing), and a family history of mood disorders, other recognized predictors of major depression in women, are all predictors of postpartum depression (Wisner, et al., 2001). However, the likelihood of postpartum depression does not appear to be related to a woman's educational level, the sex of her infant, whether or not she breast-feeds, the mode of delivery, or whether or not the pregnancy was planned (Wisner, et al., 2001). Other risk factors that were also found not related to postpartum depression include mother's age or the number of children. It is more likely to occur in women who lack emotional support or who have had (The American Congress of Obstetricians and Gynecologists, ACOG, 2010).

Robertson et al., have also recently reviewed the literature looking for the etiological factors of PDD. Similar to others, they found that depression or anxiety during pregnancy, past history of psychiatric illness, life events like the death of a loved one, relationship breakdown, divorce, losing a job, pregnancy and having a new child can all trigger depressive episodes. They further support the belief that lack of social support, impaired marital relationship and obstetric problems also predispose mothers to PPD Moreover. The socioeconomic deprivation indicators such as unemployment, low income, and low education have been found to be risk factors for depression. These results are consistent across different cultures and countries. However, girl gender was found to be a risk factor for PPD in certain communities like India and China; who prefer male over female babies (Robertson, et al., 2004).

Various explanatory models on etiology and causal factors of postpartum depression have been proposed and it is probable that the illness is ordinarily a result of an interaction between genetic vulnerability, hormonal changes, environmental stress and major life events (Josefsson, 2003).

2.6 Predictors and Risk factors

Merrit, et al., (2001) and the American Congress of Obstetricians and Gynecologists have deeply investigated the literature looking for the possible correlations and risk factors for PPD, they summarized the following predisposing factors:

2.6.1 Biological related factors:

Stress has been studied as a possible cause of postpartum depression as it is known to contribute to depressive symptoms, in particular the stress of the birth experience. Some researchers suggest that a particularly difficult delivery can trigger the onset of postpartum depression, and some even support the diagnosis of post traumatic stress disorder in such cases. Caesarean section delivery is another delivery variable associated with postpartum depression. General life stress, including role conflict and strain, has also been considered as a possible cause of postpartum depression due to the biological implications of stress on the new mother. Sleep deprivation, as well as

histories of depression are possible biological causes for postpartum depression. While sleep deprivation is a common complaint of many new mothers, there is little evidence to show it is a cause of postpartum depression. However, women with a history of depression are more likely to develop depressive symptoms in the postpartum period. The levels of the hormones *estrogen, progesterone* and thyroid decrease sharply in the hours after childbirth, and this change may trigger depression in the same way that much smaller changes in hormone levels can trigger mood swings and tension before menstrual periods.

The literature fails to confirm any particular biological cause of postpartum depression. Therefore, the lack of clear biological causality suggests that social and psychological factors surrounding the birth experience underline the etiology of the condition.

2.6.2 Cultural related factors:

An anthropological perspective on postpartum depression suggests that postpartum depression, does not affect countries outside of Western / industrialized countries in the same degree due the profound support being provided by the extended family in non-Western/industrialized countries. Therefore those countries show a very low incidence of postpartum depression. Another possibility is that postpartum depression is simply ignored or unrecognized in these countries giving lower reported rates. One of the major psychosocial factors believed to prevent postpartum depression, which is commonly demonstrated in the birth traditions of non-Western countries, is a large supportive kin group. In addition, these countries have extensive structuring of the time period following the birth of a child. The attention which is placed on the new mother, coupled with the support received from the kin group is believed by anthropologists to be protective against postpartum depression. In comparison, Western birth rituals typically end as soon as the new mother and baby leave the hospital. New mothers receive little help and for a much shorter period of time. The focus of rituals (e.g. baptism) is typically on the new baby rather than the needs of the new mother. These differences in the psychosocial experiences of childbirth may account for the high rates of postpartum depression in the Western versus in non-Western cultures and suggest that it is a culture-bound syndrome.

2.6.3 Expectation related factors

Expectations, both those related to the mother and her infant, represent another major psychosocial correlate of postpartum depression. Mothers can have expectations for parenthood marks major milestone in family development. It can be a time of considerable stress as parents adapt to the new roles and responsibilities of taking care of a helpless and dependent infant. Certain women are predisposed to developing depression following childbirth. Women who displayed higher levels of depressive symptoms during pregnancy or with previous episode of depression, or who had premenstrual depression are all at increased risk for postpartum depression. The ability to adapt to the new family situation becomes difficult for those women who are already vulnerable because of prior depression, adjustment difficulties, and being a first time parent. Women who already suffer from depression tend to see their infants as more difficult and have a more negative perception of their infants. (That's why women may face some unexpected stressors, mainly psychosocial).

Concerns during pregnancy also create stress that may contribute to the onset of postpartum depression. It was found that depressed women found their pregnancies more stressful and were less likely to have planned to become pregnant, and a small majority acknowledged feeling unhappy about it. In addition, a significant number of depressed women reported feeling worried during pregnancy due to higher rates of minor pregnancy, delivery and labor complications. Hence, it is important to prepare women for pregnancy, infant care and the new lifestyle that needs new roles in the family.

Women may also place expectations on quality of her infant including the health status and behavior of the infant. Postpartum depression can be triggered if an infant does not meet the mother's expectations by being below average or premature. For some new mothers, they have too high expectations for themselves; care of the infant, household and other new roles are believed to be easy to manage. Such confidence would be faced with difficulties in managing the new situation which can trigger PPD.

2.6.4 Social Support related factors

Because the transition to motherhood is a difficult one, new mothers need help via social support. Social support falls into four basic categories as cited in the literature: instrumental/ tangible aid; informational/ advice or information; emotional/ love and caring and finally appraisal/ reassurance and feedback. The mother's satisfaction with social support has been related to postpartum depression. Women have lower rates of postpartum depression whenever they receive appropriate care, emotional support and assistance from by partners, relatives and friends during the postpartum period and during labor.

The American Congress of Obstetricians and Gynecologists (ACOG), has published the warning signs and symptoms indicating a suspected development of postpartum depression, a new mother having any of these signs or symptoms should seek help:

1. The baby blues do not start to fade after about 1 week, or if the feelings get worse.
2. Strong feelings of depression and anger 1–2 months after childbirth.
3. Feelings of sadness, doubt, guilt, or helplessness seem to increase each week and get in the way of normal functions.
4. She is not able to care for herself or her baby.
5. She has trouble doing tasks at home or on the job.
6. Her appetite changes.
7. Things that used to bring her pleasure no longer do.
8. Concern and worry about the baby are too intense, or interest in the baby is lacking.
9. Anxiety or panic attacks occur. She may be afraid to be left alone in the house with the baby.
10. She fears harming the baby. These feelings are almost never acted on by women with postpartum depression, but they can be scary. These feelings may lead to guilt, which makes the depression worse.
11. She has thoughts of self-harm or suicide. (The American Congress of Obstetricians and Gynecologists, ACOG), (2010).

According to epidemiological studies and meta-analyses of predictive studies, the strongest predictors of postpartum depression are: antenatal depression and anxiety, personal and family history of depression, life stress (Beck, (2001); and the lack of social support, (Beck, 2001); (Cooper & Murray, 1998); (Mills et al., 1995); (O'Hara & Swain, 1996). Two meta-analyses also found a higher risk of postpartum depression among socially disadvantaged women (Beck, 2001); (O'Hara & Swain, 1996).

Moreover, four factors are consistently found to relate to PPD: lack of social, especially spousal support (Collins et al., (1993); (Hopkins et al., 1984); (Gjerdingen & Chaloner, 1994), prior history of depression and other emotional problems, (Wilson et al., 1996); (Gotlib et al., 1991); (Hopkins et al., 1984); (Kumar & Robson, 1984), obstetric and infant problems (Campbell and Cohn, 1991); (Kumar & Robson, 1984); (Hopkins et al., 1987), and stressful life events (Seguin et al., 1995); (Areias et al., 1996). Nevertheless, none of these psychosocial factors can be used to predict which women will develop PPD, (Chaaya et at., 2002). All women are susceptible to developing depression following child birth, however, women who have certain risk factors have a significantly increased risk of experiencing the illness (Chaaya et at., 2002).

2.7 Theoritical perspective:

Various theoretical paradigms have been applied to understanding PPD. They stem from such diverse frameworks as medical, feminist theory attachment theory, interpersonal theory and self-labeling theory (Beck, 2004). Although, many theories have tried to explain the etiology of PPD, there is no single theory that adequately explains the causes and nature of PPD (Beck, 2004).

2.7.1 Medical Model:

This model has been the dominant theoretical perspective of postpartum depression. From this vantage point, postpartum depression is considered an illness and a medical condition. This mood disorder indicates an individual pathology; and social or environmental conditions are rarely considered in its evolutions (Beck, 2002). However, using the medical model, clinicians focus on an individualistic approach.PPD is perceived as a

pathological condition which results from deficiencies in the individual (Mauthner, 1998). therefore, the social, political, and economic contexts of the mother's life are excluded. Mothers are portrayed in the medical model as passive individuals; biological factors are upon them (Beck, 2002).

This model focuses the physical processes, such as the pathology, the biochemistry and physiology of an illness and does not take external, psychosocial factors into account in the cause of and treatment of a disorder (Storkey, 2006).

There are two basic perspectives from which to view research on the biological factors associated with postpartum depression. The first perspective views postpartum depression as sharing characteristics fundamental to depression occurring at other times. Factors that are studied include cortisol as well as the special features associated with postpartum mood disorders such as potential hormonal dysfunction. Biological factors of interest are those that show changes during pregnancy, such as oestrogens, progesterone and prolactin (O'Hara & Zekoski, 1988). Research based on the medical model therefore focuses on the task of uncovering the underlying causal or correlated biological factors (Mauthner, 1998) associated with depression after childbirth as researchers attempt to understand postpartum depression in an objective way (Mauthner, 1998); (O'Hara & Zekoski, 1988).

The medical model has come under increasing attack within psychology, in particular feminist, post-structuralist and constructionst academics (Mauthner, 1999).

The assumption that postpartum depression is caused by raging hormones" persists despite the lack of any evidence relating postpartum depression consistently to any physiological variable (Whiffen, 1992). The critique of this model is therefore based on the fact that there is little empirical support among researchers for a biological basis for depression in the postpartum period and the question is raised that if depression after childbirth is brought about because of hormonal changes, as suggested by this model, why is it that a significant number of women do not get depressed at this stage (Nicolson, 1999).

A further critique of this model is its individualistic approach as depression after childbirth is regarded as a pathological condition rooted in deficiencies pertaining to the individual

mother. Taking the individual as the basic unit of analysis excludes looking at the broader social, political, economical and structural context and the ways in which they intersect with the individual women's circumstances (Mauthner, 1999).

Although of women's feelings of depression, it is important to recognize that in practice, elements of the medical perspective are valued by some women (Mauthner, 1998).

2.7.2 Feminist theory:

Feminist theory opposes the medical model's approach to postpartum depression, and proposes that terms such as "disease" and "illness" hide the social nature of women's problems (Hayes et al., 2000); (Leitch, 2002).

Feminist writers contend that postpartum depression is associated with the impossible standards of the motherhood mystique imposed by the medical model, (Beck, 2002).

Feminist theorists view motherhood in a wider sociopolitical and cultural context and call for childbirth to be stripped of its masculine ideology and rather be seen through the eyes of women. Because childbirth occurs in many simultaneous contexts (medical, social and economic), the mother's reactions to it are shaped by all of them, (Oakaley, 1980) suggested that the medical control of childbirth reinforces feminine helplessness and increases the likelihood of postpartum depression (Beck, 2002).

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In the social sciences, feminist research incorporates two distinct but complimentary goals. The first goal is a humanistic, value orientated one, where political change and commitment to social justice are primary. The second goal emphasizes reflexivity (of both researcher and subjects), subjective experience, cognitive structures, intuition, personal biographies and feelings. Incorporating these goals, the spirit of feminist research involves not only consciousness seeking, but a consciousness raising process as well (Pirie, 1988).

Feminist academics argue that a medical disease model, in which depression after childbirth is seen as an individual pathology, is inappropriate because it obscures the social political nature and contexts of women's distress. Divisions exist within feminist thinking with regard to postpartum depression. One strand of research is dominated by a structural approach in which postpartum depression is seen as a normal and understandable response to the oppressive conditions of motherhood within many societies. These researchers highlight the wider structural conditions in which parents must raise their children and they link depression to women's inferior status in society and to structural conditions and constraints, including the medicalization of childbirth, poor provision of state-funded childcare, current labor market structures and policies, inadequate parental leave options, the loss of occupational status and identity, isolation, and gendered division of household labor. Given such conditions they argue that it is "normal" that mothers become depressed (Mauthner, 1998 & 2002).

This tradition of work has tended to emphasize the losses associated with motherhood as being responsible for the development of postpartum depression. According to this theory, becoming a mother entails a loss of self, occupational status and identity, autonomy, physical integrity, time, sexuality and male company. Postpartum depression is therefore seen as a form of bereavement – a grief response to these losses and above all, to the mother's lost identity (Mauthner, 2002).

A different strand of feminist research explores not only the structural and material conditions of women's lives, but also cultural attitudes towards motherhood, femininity and postpartum depression. These social constructionist researchers argue that structural approaches are overly deterministic and neglect women's agency and the way in which they actively negotiate the social contexts in which they live (Mauthner, 2002).

Social constructionists stress the relationship between meaning and power, with language as a sign system used by the powerful to label and define to the disadvantage of women and those less powerful (Haw, 2000). These theorists view gender as a social construct that is constituted in social interaction. They view mental disorders, such as depression, as being created as discursive objects, which serve to de contextualize women's experience and subsequently reconstitute it as a symptom. They therefore examine mental disorders in

order to elaborate how these problems are manifested in women's lives, to re-link them to experiences of oppression, discrimination and relative powerlessness and to uncouple them from psychiatric discourse, which locates the difficulty within the person (Haw, 2000).

It is thought that the social construction of motherhood as natural and fulfilling and of the mother-child relationship as immediately and unambiguously positive (Lee, 1997) may play an important role in the development of depression in new mothers. The ethic of care that places the mother as the central figure in the childbearing process may be an important contributing factor to the high rates of depression in the postpartum period amongst women. From this perspective, depression after childbirth occurs when women are unable to experience, express and validate their feelings and needs within supportive, accepting and non-judgmental interpersonal relationships and cultural contexts (Mauthner, 1999).

Consequently, social constructionist researchers view depression after childbirth as a social construction, rather than a medical condition. They regard the label "postpartum depression" which suggests individual pathology and abnormality, not only as inappropriate but also as a form of social and medical control, and argue that it should be abandoned (Mauthner, 1998).

While feminist research has done a good job of mapping the cultural and structural restrictions of women's lives, there is still a need to explore the different ways in which individual women deal with the ideologies, meanings, practices and social conditions of motherhood. The tendency of some feminist researchers to assume that social structures and cultural discourses affect women in a uniform way, and to present women's responses to motherhood as homogenous and universally negative, leaves unanswered the question of why some women become depressed following childbirth and others do not (Mauthner, 2002).

Because childbirth occurs in many simultaneous contexts (medical, social, and economic), the mother's reactions to it are shaped by all of them (Beck, 2002). Oakaley, (1980) suggested that the medical control of childbirth reinforces feminine helplessness and increases the likelihood of postpartum depression.

2.7.3 Attachment theory:

Attachment theory is another theoretical perspective that has been used as a basis for the treatment of postpartum depression. Whiffen & Johnson, (1998) propose that postpartum depression can develop when a mother's attachment needs are not being satisfied by her partner whom she feels is irresponsive or inaccessible to her.

Originally attachment theory focused on the importance of the strong emotional bond between an infant and the primary caregiver, usually the mother. (Beck, 2002) there are three styles of attachment theory that has now been extended beyond the mother-infant relationship to explain adult relationships. Attachment needs to take front stage during times of uncertainty. Avoidant-attachment can be troublesome. As in (Beck, 2002) Bartholomew identified two other types of avoidant attachment in adults: fearful and dismissing. Fearful-avoidant adults have a desire to be close to their significant others, but fear they will be rejected by them. Conversely, dismissing-avoidant adults do not desire closeness with their significant others.

Using attachment theory as their framework (Whiffen & Johnson, 1988) proposed that mothers and fathers rely on each other for support during the anxiety-filled transition to parenthood. When both mother and father are securely attached, they will respond to each other's needs for support. However, if either parent is insecurely attached or is avoidant attached, problems can occur that could lead to postpartum depression. According to Beck, (2002) the depressed mother may feel abandoned by her unresponsive spouse. However, mothers who perceive a dramatic decrease in marital satisfaction and whose husbands are not actively involved in infant caretaking experience more depressive symptoms

2.7.4 Interpersonal theory:

Interpersonal theory views humans as essentially social beings whose personalities are determined by interpersonal experiences rather than intrapsychic experience (Hayes et al., 2000). According to this theory new mothers have, during their role transition, numerous disruptions in their interpersonal relationships and have opposition between desired level of support and actual level of support they receive (Beck, 2002) and (Hayes et al., 2000).

2.7.5 Biopsychosocial model

The biopsychosocial model of medicine is a way of looking at the mind and the body of a patient as two important systems that are interrelated. It treats the biological, psychological and social issues as systems of the body and it states that the workings of the body can affect the mind, and the workings of the mind can affect the body (Engel, 1977).

According to the bio psychosocial model, the biological, psychological and social levels are dynamically interrelated and these relationships affect both the process and outcomes of care. It acknowledges the fact that psychosocial factors can cause a biological effect by predisposing the patient to risk factors. The bio psychosocial perspective involves an appreciation that disease and illness do not manifest themselves only in terms of patho physiology, but may also simultaneously affect many different levels of functioning, from cellular to organ system to person to family to society (Engel, 1977).

In an attempt to depathologize the experience of childbirth and prevent a reductionistic understanding of postpartum depression, the bio psychosocial model has examined various factors that may play a role in the development of depression after childbirth (Smit, 2002). Pregnancy and birth are often regarded as stressful life events and it has been suggested that the stressfulness of these events may lead to depression. However, researchers have found that the existence of additional stressful life events during pregnancy and the postpartum period may play a causal role in the development of postpartum depression (Dudley et al., 2001); (Johnstone et al., 2001).

The biopsychosocial model also regards the social context in which women function at the time of childbirth as having an important influence on their mental health status (O'Hara & Zekoski, 1988). Several studies have evaluated the role of social support in reducing the relationships, (Murray, 1992), single (Wickberg & Hwang, 1997) and a poor relationship with the maternal parents as all having been associated with the development of postpartum depression (Smit, 2002).

Studies have also shown an association between both pregnancy and delivery complications (Campbell & Cohn, 1991). Although the literature shows that there is an association between postpartum depression and certain psychosocial variables, the nature of the relationship between social factors and postpartum depression has not been established (O'Hara & Zekoski, 1988).

Whilst a breakdown of support structures may lead to postpartum depression, the possibility exists that postpartum depression may be responsible for the breakdown of these support structures. The biopsychosocial model therefore has a problem with linearity, as the model does not acknowledge that social factors have an impact on biological factors and vice versa.

A further critique of the biopsychosocial perspective on postpartum depression is based on methodological flaws associated with the research on psychosocial variables, including the criteria used to define and study postpartum depression (Smit, 2002) and the poor measurement of constructs (O'Hara & Zekoski, 1988).

The biopsychosocial perspective embraces a more liberal, broader view of the individual in context than the medical model as it conceptualizes the mother as a potential victim of social stressors. Although this model proposes the view that depression after childbirth is an understandable reaction to stress, it fails to identify how the experience itself varies between individuals (Nicolson, 2000).

2.8 Impact and Treatment:

2.8.1 Impact of Postpartum Depression:

Postpartum depression is an important public health problem with adverse effects on mothers, infants, and families (Grigoriadis & Ravitz, 2007**).** It is a common, potentially life-threatening and disabling condition, affecting 10% to 15% of women, and its prevalence ranges from 5% to 20% (Grigoriadis & Ravitz, 2007**).** It causes great suffering and has negative consequences for mothers' social relationships, social

dysfunction, marital-maladjustment and even the development of infants (Dennis & Stewart, 2004), (Zlotnick et al., 2001).

2.8.1.1 Impact on Mothers:

Postpartum depression can cause women to suffer from the following symptoms: dysphoria, emotional liability, tearfulness, insomnia, confusion, anxiety, guilt, somatic symptoms, and suicidal ideation; All of which greatly affect the mothers' quality of life (Dennis & Stewart, 2004); (Zlotnick et al., 2001).

Any women with PPD are unable to feel any joy or love in taking care of their infants, and often have obsessional thoughts about harming them (APA 1994).

The depressed woman feels inadequate as a mother and gets little satisfaction from motherhood. The unhappy harmony of becoming a mother and becoming mentally ill accounts much of the difference between young adult men and women in rates of psychiatric morbidity. But the impacts of postnatal illness extend beyond the mother. There is empirical and growing evidence of adverse effects of early maternal depression on the psychological development of the young child (Sammour, 2002).

2.8.1.2 Impact on Infants:

Postpartum or maternal depression has been considered a risk factor for the child's cognitive and emotional development (Cogill et al., 1986), (Cummings et al., 1994), (Sharp et al., 1995) and (Murray et al., 1996). There are different suggestions concerning how an emotional disorder affecting the mother might adversely influence the child. The most common proposal is that the symptoms of depression interfere with the ability to establish a relationship, and to communicate and interact well with the child (Murray, 1992).

Cognitive problems have been observed among children of postpartum depressed mothers in three English population samples (Cogill et al., 1986); (Murray et al., 1996) and (Hay et al., 2001) where a longitudinal follow-up has been performed. The duration and intensity of the problems vary between the groups, which is most likely explained by the social

differences between the samples In a review Weinberg & Tronick, (1998) summarized findings about the effects of maternal depression on infant cognitive, behavioral, and emotional functioning, showing compromised development in all three domains. These effects lasted beyond the mother's resumption of normal interaction with the child. The data also suggested that male infants might be more vulnerable to maternal depression than female infants (Storkey, 2006).

Moreover, it was found that the mother-infant bond is impaired by maternal depression and further, there is a link between postpartum depression and later problems in children's cognitive and social-emotional development (O'Hara et al., 2000). Wisner et al., (1999) stated that the difficulties in the interactions between depressed mothers and infants increase the risk of insecure attachment, cognitive and behavioral problems in children. Similarly, Jofensson et al., (2002) reported that maternal depression early in the infant's life may affect the child's psychological development with significant intellectual deficits. However, other consequences include higher risk of accidents, sudden infant death syndrome, and a higher frequency of hospital admissions (Josefenson et al., 2002).

There are a number of studies that have reported that postpartum depression affects the children of women who have suffered from it. A study by Lindgren (2001), reports that children of depressed mothers display more insecure attachment than those children of non-depressed mothers.

Similarly, a study by Brennan, et al. (2000) determined that there was a link between severity, chronicity, and timing of maternal depressive symptoms and child outcomes at age five. This Australian study involved 4,953 mothers and children born between 1981 and 1984. Mothers completed the Delusions-Symptoms-States Inventory while pregnant, immediately following delivery, and 6 months postpartum. They also completed the Child Behavior Checklist and the Peabody Picture Vocabulary Test when the child was 5 years old. The result showed that there was a significant relationship between severity of maternal depressive symptoms and their child's behavior problems and vocabulary skills. Mothers whose symptoms were characterized as both chronic and severe had children with high levels of behavior problems. Follow-up examinations of children with behavior

problems revealed that over 30% of children of mothers with severe and chronic symptoms had scores higher than the 90th percentile on the Child Behavior Checklist compared with less than 5% of children whose mothers had no symptoms.

2.8.1.3 Impact on Partner and family

Postpartum depression can also greatly affect the relationship between mother and her partner. This can cause a great amount of stress on the family and especially if there are other children involved. Fathers also feel the affect of postpartum depression and can become anxious, depressed, or irritable (Leitch, 2002).

In an article at Al-Quds daily Newspaper, (2010) American study found that the husbands of women having PPD get depressed as well with a rate of (10.4%), which may have even big negative impact on the family as a whole.

2.8.2 Treatment:

There are no definite treatment guidelines available for postpartum depression. In the USA, clinical-practice guidelines developed by the American Psychiatric Association for major depression in adults are applied. However, the severity of symptoms, the preferences of the patient, and the response to treatment during previous episodes influence the recommendations for psychotherapy, antidepressants, or electroconvulsive therapy (Wisner et al., 1999). However, evidence indicates that pharmacologic, psychotherapeutic management, cognitive behavioral therapy and interpersonal psychotherapy (IPT) of PPD are effective approaches (Grigoriadis & Ravitz, 2007**) ; (**O'Hara et al., 2000).

Pharmacological interventions and hormonal therapy have been described as a treatment approach to PPD. The use of antidepressant drugs like serotonin-reuptake inhibitors for postpartum depression has been shown in the literature. However, all antidepressants are excreted in breast milk, hence, the optimal clinical management dictates the use of the lowest effective dose of antidepressants in a lactating mother. Moreover, hormonal therapy is another option in treating PPD. Estrogen therapy was also described in the literature as a

treatment of PPD. However, estradiol treatment for postpartum and breastfeeding women needs further research to determine the significance of estradiol in the pathophysiology of postpartum depression, Wisner, et al., (2000); Dennis and Stewart, (2004). In general, there are concerns with pharmacologic management that neonates might be exposed to antidepressant drugs through breast milk (Grigoriadis & Ravitz, 2007**).**

Interpersonal psychotherapy (IPT) has been found to be effective in treating PPD. It focuses on the important interpersonal changes and challenges women experience during the postpartum period. It emphasizes interpersonal disputes, role transitions and bereavement aspects of the condition (Grigoriadis & Ravitz, 2007**).** O'Hara, et al., (2000) found that Interpersonal psychotherapy is an effective treatment for postpartum depression. Interpersonal psychotherapy reduced depressive symptoms, improved social adjustment, and represents an alternative treatment to pharmacotherapy, particularly for women who are breastfeeding.

Sleep deprivation has been also described for women with depression after birth. Critically timed sleep deprivation has been found to improve mood in some women with PPD. Similarly, bright light therapy (photo-therapy-exposure to light in a light box) has been also found to show good results in treating PPD. However, further studies still needed to examine such approaches. Electroconvulsive therapy (ECT) is another option for severely depressed postpartum women. It is most commonly used for suicidal, homicidal, or drug-resistant severe depression. The therapy also has a positive advantage in breastfeeding mothers who worry about their infants being exposed to antidepressant medication (Wisner et al., 2000); (Dennis & Stewart, 2004).

Prophylactic treatment for women who have a history of depression should be considered due to the high risk of recurrence after childbirth. After one postpartum episode, the risk of recurrence is 25 percent. Preventive therapy after delivery should be considered for women with any previous episode of depression. In addition, new mothers must redefine themselves in terms of their self-concepts, lifestyles, roles and relationships with others. They must also learn to balance the needs of the baby with their own needs and those of their spouse. This is a prophylactic treatment against PPD (Merrit et al., 2001); (Wisner et al., 1999). In general, preventive interventions,

particularly those administered in a group therapy, were found to reduce postpartum depressive symptoms. Women who received group intervention focusing on preparation for parenthood and had social support were found to have less depressive probability (Zlotnick et al., 2001).

The improved outcomes afforded by postpartum depression screening and treatment are potentially encouraging. They include not only improving the signs and symptoms of postpartum depression, but also enhancing the new mother's ability to continue to actively participate in a marriage or relationship. Recognizing and treating postpartum depression provides opportunities to decrease divorce rates, improve rates of normal child development and lower suicide and infanticide rates (Gjerdingen & Yawn, 2007).

2.9 Previous studies:

The study of Mohammad, et al., (2010)

The title of the study: **"Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women".**

The aim of the study was to investigate the prevalence of depression during pregnancy and postpartum period for Jordanian women and identify associated risk factors and maternity services delivery issues.

The design of the study was prospective cross-sectional study. Participants were recruited during the last trimester of pregnancy, provided personal, social and obstetric information, and completed the Edinburgh Postnatal Depression Scale (EPDS), and other measuring tools.

The results of the study showed high rates of antenatal (19%) and postnatal depression (22%) were reported. A regression analysis revealed that stress, anxiety, financial problems, perceived lack of parenting knowledge, difficult relationship with the mother-in –law, unplanned pregnancy, and low self-efficacy were associated with antenatal depression. These seven factors accounted for 83% (r (2)=0.834) of variance in the development of probable antenatal depression. At the six-eight weeks postpartum, a regression analysis revealed that antenatal depression, unplanned pregnancy, difficult

relationship with mother-in-law, dissatisfaction with overall care, stress, lack of social support, giving birth to female baby, feeling pressured to birth the baby quickly, and perceived low parenting knowledge were associated with postnatal depression. These nine variables accounted for 82% (r (2)=0819) of variance in the development of probable PND.

The study of Hamoudeh, et al., (2009)

The title of the study: **"In Search of Health: Quality of Life Among Postpartum Palestinian Women".**

A cross sectional survey utilizing the adapted Maternal Postpartum Quality of life questionnaire was completed in the occupied Palestinian territory with a sample of 1020 women. The aim of the study was to assess Palestinian women's postpartum quality of life and the factors associated with variations in their quality of life scores. The study was conducted in Ramallah governorate. The adapted Arabic language version of the questionnaire included the original components as well as socio demographic questions, satisfaction questions on items deemed important by women participating in the focus group discussions, and other questions on women's performance, pregnancy intentions and care seeking behaviors.. The data collection took place between 13 August 2007 and 1 September 2007. This technique ensured that the women included in the sample were in their first year postpartum. The results indicate that a high of 44.1% of the respondents reported that emotional support to be the most important type of support they needed during the postpartum period, compared with other types of support.

The results of this study highlight the diversity and complexity of the social context, in particular the region where women live, and the issue of pregnancy wantedness in postpartum quality of life. They also call into question the services offered to postpartum women (Hamoudeh et al., 2009).

The study of Abdallah study (2007):

This study was conducted in Palestine, titled: **"Postpartum Depression Among a Sample of Palestinian Women in the West Bank"**, it aimed at assessing the prevalence of PPD among Palestinian women and its main predicting variables. A sample of 150

women were recruited from Al-Maqased hospital in Jerusalem between March 2007 and September at the same year. The Beck's depression inventory was used in this study.
The prevalence of PPD among those participants was 65.3%, and the main predicting variables were stressful life style, medical problems for member of the family and the educational level of the participant.

The study of Alami et al., (2006)
An interesting study titled: **"Prevalence and Psychosocial Correlates of Depressed Mood During Pregnancy and After Childbirth"**,

The study was conducted in the Arab World, in a Moroccan sample. The aim of the study was to determine the prevalence of depression among 100 women followed from the first trimester of pregnancy to 9 months after delivery.

The study was conducted in the maternal and infantile health unit in a primary healthcare setting in Casablanca. One hundred pregnant women were recruited between February 1999 and July 2000.

Mini international Neuropsychiatric Interview, Edinburgh Postnatal Depression Scale and Paykel Life Events Inventory were used. Seventeen percent of the subjects experienced depression during postpartum, and19.2% started their episode during pregnancy. Psychosocial variables were positively correlated to depression during pregnancy, (Alami et al., 2006).

The study of M. Chaaya, et.al., (2002) study:
Cross-sectional study titled: **"Postpartum depression: prevalence and determinants in Lebanon"**

The study was conducted to assess the prevalence and determinants of postpartum depression according to demographics data (age, education level and living area). Fifty hundred and thirty eight child -bearing women whose ages were selected between (16-44).

Study sample was derived from maternity wards in nine hospitals in Beirut and the Beka'a Valley. All women who gave birth between October and December 1997 at hospitals in the Beka'a Valley and between June and August 1998 at hospitals in Beirut were approached after the delivery and asked to participate in the study (convince sample). Consenting women were then asked to respond to a questionnaire administered in the hospital within 24 hours of delivery (phase I) and were asked for a home interview to be conducted later (phase II), Data were collected through face to face interviews by using structured instruments constructed for phase I and II of the project by the principal investigator, and using the Arabic version of the Edinburgh postnatal depression scale (EPDS). The women in Beirut were seen at 5 months and the women in the Beka'a Valley at 4 months after delivery. Fifty hundred and thirty eight women (303 in Beirut and 235 in the Beka'a Valley) completed the initial interview. A total of thirty hundred and ninny five (74%) were followed up (68% in Beirut compared with 80% in the Beka'a Valley). Finding Show that postpartum depression in the Beka'a Valley was significantly higher than in Beirut 26%, the prevalence of PPD in Beirut was 21%.

The study of Sammour, (2002)

The title of the study was **"Prevalence and risk factors of postpartum depression in Gaza Strip- Palestine".**

In a study submitted for the Master degree in Al-Quds university, Gaza, the study aimed to evaluate the prevalence of postpartum depression and to illustrate the psychosocial risk factors of postpartum depression in Gaza Strip-Palestine.

The sample consisted of 364 mothers gave birth in Gaza strip at 2001-2002, assessing the maternal care centers and obstetric hospitals in Gaza, all subjects were assessed during first month in postpartum period using the EPDS, in which scores of 13 or more in this study, considered to signal depression.

The prevalence rate of postpartum depression was 69% and a prenatal risk factors emerged as commonly believed risk factors for postpartum depression added to them the most common postnatal stressor the political situational stressor with significant association (pearson coefficient = 0.01).

The study concluded that 69% of mothers in first 4 weeks after delivery period display a probable depression, and it's risk factors in Gaza strip in Palestine related to the most common prevalent stress in the political violence in this area added to physical and psychosocial stressors.

The study of Abou-Saleh et al., study (1997)
The title of the study is: "**Postpartum Psychiatric Illness in Arab Culture: Prevalence and Psychosocial Correlates"**

A cross sectional study conducted in New Dubai Hospital in Dubai, United Arab Emirates, to assess postpartum depression among Ninety-five women who were chosen non purposefully in childbearing age.

The aim of the study was to determine prospectively the prevalence of postpartum psychiatric disorder and its socio cultural correlates using the Present State Examination PSE (Wing et al., 1974) in a consecutive series of childbearing women in Dubai, and to compare this with prevalence rates reported in studies done in Western Europe and North America.

A standardized semi-structured interview questionnaire was used. This questionnaire was designed and used in the Dubai Community Psychiatric Survey. The interview covered personal history data including age, education, social class and employment status, as well as past psychiatric history, family background and relationship. The personal section related to assessment of the marital relationship: degree of intimacy, whether monogamous or polygamous, and the outcome of any previous marriages. Other items were the occurrence of stressful life events in the previous six months and previous 12 months, and obstetric risk factors (e.g. number of pregnancies, previous miscarriages, having medical illness, or using medication during pregnancy). Past psychiatric history was based on receiving treatment for psychological problems. The presence of a close relative with an alcohol problem was assessed on the basis of the problem causing serious suffering or disability.

The Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) was also administered by clinician seven days after childbirth, was also translated into Arabic.
All local women who were admitted to the postnatal ward during the period from mid-July 1994 to the end of August 1994 were studied. However, Instruments used in this study were as follows:

The present State Examination (PSE; Wing et al, 1974) was administered at **8+2** weeks and at **30+2** weeks from delivery.

The prevalence of psychiatric morbidity was 24% according to the SRQ and 18% according to the EPDS and no loss of follow up. .The weakness of the study was that the sample was non randomly selected. The prevalence rate of postpartum psychiatric morbidity and its risk factors in this Arab culture are similar to the results obtained in numerous previous studies in industrialized countries. These findings have implications for the early detection and care of women at risk for postpartum depression

The study of Kheirabadi et al., (2009)
The title of the study: **"Risk Factors of Postpartum Depression in Rural Areas of Isfahan Province, Iran".**

The aim of this study was to study the risk factors of postpartum depression in women living in rural areas of Isfahan Province in Iran.

The study was conducted in rural areas of Isfahan Province (with varied geographical, cultural, and socioeconomically properties) in the central zone of Iran. A cross sectional study, assessed 6627 women. Participants were all rural women with different socioeconomic status from Isfahan who had a child of two to 12 months.

The severity of depression was assessed using the Persian version of BDI-II since the Persian version of EPDS was not available at that time.

The participants in this study had an age range of 13 to 50 years with a mean (SD) of 26.03 (5.1) years. Of these, 57.1% were screened possible cases of depression and based on the

BDI scores, 20% (1324) fell within the mild range of scores, 18.3% (1211) within the moderate range, and 18.9% (1251) within the severe range.

The results of the study were as follows: unemployment, low education, mother's young age, history of depression, undesired gender of the child, unplanned pregnancy, and history of depression were the main risk factors of postpartum depression. As a conclusion of this study, risk factors of postpartum depression in Isfahan Province were very similar to other studies, but the negative impact of low level of education, unplanned pregnancy, and undesired gender of the child on postnatal depression seems to be characteristics of this populations.

The study of Tannous et al., 2008

The title of the study: **"Postnatal Depression in Southern Brazil: Prevalence and its Demographic and Socioeconomic Determinants".**

This study aimed to investigate the prevalence of PND in women residing in Southern Brazil and the associated risk factors.

It is a cross sectional study of women residing in Porto Alegre who delivered in June 2001. A sample of 271 participants were selected from the record living Newborn infants of the State Health Department , using a process based a pseudo-random numbers which choose a random sample from 2.000 records. Once the addresses were identified, the women were visited at their place of residence (home, hotel, boarding house and prison), with the interviews taking place between the 6^{th} and the 8^{th} week after delivery, using the EPDS tool.

The PND prevalence found is high, pointing towards to consider it an issue of public health given the already identified adverse effects on the mother, the new born and the family while the condition remains untreated, requiring public policies for its prevention and treatment.

The study of Buist et al (2008)

The title of the study: **"Postnatal Mental Health of Women Giving Birth in Australia 2002-2004: Findings From the Beyondblue National Postnatal Depression Program".**

The aim of the study was to describe the postnatal mental health status of women giving birth in Australia 2002-2004 at 6-8 weeks postpartum.

Women were recruited from 43 health services across Australia. Women completed a demographic questionnaire and an Edinburgh Postnatal Depression Scale (EPDS) in pregnancy; the latter was repeated at 6-8 weeks following childbirth.

A total of 12 361 postnatal women (53.8% of all postnatal women surveyed) completed questionnaires as part of a depression screening programme.fifteen point five percent of women screened had a postnatal EPDS > 9 and 7.5% of women had an EPDS > 12 at 6-8 weeks following childbirth. There was significant variation between states in the percentage of women scoring as being potentially depressed. The highest percentage of women scoring EPDS > 12 were in Queensland and South Australia (both 10.2%) while Western Australia had the lowest prevalence (5.6%). Women recruited from private health services in Western Australia had a significantly lower prevalence of elevated EPDS scores than those women recruited from the public health services (EPDS >12: 3.6% vs 6.4%, p=0.026. Difference in the prevalence of elevated EPDS scores were not significant between hospitals or centers in Australian Capital Territory (EPDS > 12: 7.6% vs 5.8%, p=0.48), where income and education were significantly higher than other states for both groups.

The study concluded that, postnatal depressive symptoms affect a significant number of women giving birth in Australia, and the point prevalence on the EPDS may be higher for women in the public sector, associated with lower incomes and educational levels. Maternity services – particularly those serving women with these risk factors – need to consider how they identify and manage the emotional health needs of women in their care. Specific State-related issues, such as availability of specialist prenatal mental health services and liaison between treating health professionals, also need to be considered.

The study of Watanabe et al (2008)

The title of the study: **"Maternity Blues as Predictor of Postpartum Depression: A Prospective Cohort Study Among Japanese Women".**

Few studies have shown the relationship between the severity of maternity blues and the risk of postnatal depression. The authors carried out a longitudinal study among Japanese women to show that maternity blues is a useful factor for predicting postpartum depression.

Two hundred and thirty-five women completed questionnaires before delivery, and five days, one month, and three months after delivery. They were required to answer the Stein's Blues Scale and Edinburgh Postnatal Depression Scale and other variables. A sequential logistic regression analysis was performed to estimate the association of maternity blues with postpartum depression. The stratum-specific likelihood ratio was then calculated.

The result of the study was as follows: the prevalence of postpartum depression was 12.8%. A Blues Scale of eight or above was significantly associated with postnatal depression. Likelihood ratio (95% CI) for the Stein's Blues Scale of 0 to 3,4 to 7, 8 to 11 and 12 or more were 0.33 (0.16-0.65), 1.06 (0.60-1.88), 3.42 (1.64-7.12) and 9.57 (3.41-26.86), respectively.

The findings of the study suggest that maternity blues is a strong predictor of postpartum depression. The higher the blues score, the higher the risk of postpartum.

The study of Benoit et al., (2007)
The title of the study: **"Social Factors Linked to Postpartum Depression: A Mixed-Methods Longitudinal Study**

The aim of the study was to investigate the association between social factors, the organization of maternity care services, and the prevalence of depression among a purposive sample of new mothers at 3-4 weeks and 4-6 months postpartum.

The methodology used in this study is longitudinal, mixed-methods research design. However, the results were as follows: the quantitative analyses demonstrate that income and postpartum depression were linked and there was also an association between satisfaction with the birth experience and depression at 3-4 weeks postpartum. Thematic

analysis of the qualitative interview data revealed two main sources of dissatisfaction: disruption of birth plans and inadequate support from maternity providers.

The study of Segre et al., (2007)
The title of the study**: "The Prevalence of Postpartum Depression: The Relative Significance of Three Social Indices)**

The purpose of the present study was to examine the prevalence of postpartum depression as a function of three indices of social status: income, education and occupational prestige. The sample of 4,332 postpartum women completed a demographic interview and Inventory to Diagnose Depression, a self-report scale developed to identify a major depressive episode in accordance with DSM diagnostic criteria. Logistic regression was used to assess the relative significance of the three social status variables as risk factors for postpartum depression controlling for the effects of correlated demographic variables.

As a result, income, occupational prestige, marital status, and number of children were significant predictors of postpartum depression controlling for the effects of other related demographic characteristics. The Walls Chi Square value for each of these significant predictors indicates that income was the strongest predictor.

As a conclusion of the study the prevalence of postpartum depression was significantly higher in financially poor relative to financially affluent women. Maternal depression screening programs targeting women who are financially poor are well placed. Future research is needed to replicate the present findings in a more ethnically diverse sample that includes the full age range of teenage mothers.

The study of Najafi et al. (2007)
the study title is: **"Prevalence of Postpartum Depression in a Group of Women Delivering at a Hospital in Rasht City, Iran"**.

The aim of the study was to assess the prevalence and determinants of PPD in Rasht (a city in northern part of Iran). A descriptive and cross-sectional study, at Al-Zahra Obstetrics and Gynecology hospital in Rasht city was conducted between Iran from

January to March, 2004. three hundred thirty five women delivering in Al-Zahra hospital were assessed 2 weeks after delivery using Beck's depression inventory.
The overall prevalence of PPD was 20%. Regarding Beck depression inventory, 61 patients had mild depression and 6 patients suffered from moderate depression. In these patients, unemployment and history of abortion and infant death were significantly associated with PPD.

The prevalence of mild depression in this study was notable (18.2 %). Caregivers should use pre and postnatal assessments to identify and address women at risk of PPD. (Najafi et al., 2007)

The study of Abbott and Williams (2006)
The study title: **"Postnatal Depressive Symptoms Among Pacific Mothers in Auckland: Prevalence and Risk Factors".**

The aim of the study was to assess the prevalence of, and risk factors for postnatal depressive symptoms in a cohort of mothers of Pacific Island infants in Auckland, New Zealand.

The data were gathered as part of the Pacific Island Families Study, in which 1376 mothers were interviewed when their babies were 6 weeks old. The interview included the Edinburgh Postnatal Depression Scale (EPDS).

The result was that 16.4% of mothers were assessed as probably experiencing depression. Prevalence rates varied from 7.6 for Samoans to 30.9% for Tongans. In addition to ethnicity, risk factors identified by stepwise multiple logistic regression included low pacific Island acculturation, first birth, stress due to insufficient food, household income less than $40.000, difficulty with transport, dissatisfaction with pregnancy, birth experience, baby's sleep patterns, partner relationship and home. A large prevalence difference between Tongans and other groups remained when the effects of other risk factors were controlled statistically.

The prevalence of depressive symptoms among Pacific mothers is at the upper end of the range typically reported. Focus on the overall rate, however, obscures substantial variation between groups. Risk factors are generally similar to those identified in previous research.

The study of Moraes et al., (2006)
A study on: "**Prevalence of Postpartum Depression and Associated Factors".**

The aim of the study was to assess the prevalence of postpartum depression and associated factors. The study was carried out in Pelotas, a city in the Southern region of Brazil, between October and November 2000. four hundred and ten mothers were interviewed in the hospital using two questionnaires on obstetric and psychosocial data. Later, these mothers were visited at home, within 30 to 45 days after delivery. Occurrence of postpartum depressive symptoms was assessed by the Hamilton Scale for Depression.
The prevalence of postpartum depression observed in this sample was 19.1%, family income, preference as to the child's gender and thinking about interrupting the pregnancy were variables associated with postpartum depression. These results indicate that low economic status of the puerperal woman and no acceptance of pregnancy are key elements in the development of postpartum depression.

The study of Tsanani- Eilat et al., (2006)
In a study conducted in Israel titled: **"The Effect of Postpartum Depression on Women's Consultation with Physicians"**.

The aim of the study is to identify patients with PPD and to describe their consultation patterns with primary care physicians for themselves and their babies. A prospective study was conducted to assess the incidence of PPD in a sample of women aged 18 years and above who gave birth at HaEmek Medical Center in Afula, Israel between February and May 1999. The patient population comprises Jews and Arabs who live in urban and rural communities. Using a telephone survey and the Edinburgh Postnatal Depression Scale questionnaire, also is assessed the extent to which the women consulted with family physicians, gynecologists and/or pediatricians.

The survey included 574 women, of whom 9.9% were diagnosed with PPD. There was a higher rate of PPD among Arab compared to Jewish women; among women with a prior history of depression, women whose pregnancy was unplanned, those who described the course of pregnancy as "difficult" and women who described their general health as "not good". Women with PPD consulted more with family physicians and pediatricians. The reasons for the consultations are physical and emotional. There were cases of somatization manifested directly by the mother or indirectly through the baby. Women with PPD have higher consultation rates than those without. By asking a few simple questions it is possible to identify a significant proportion of women with PPD

The study of Sadeghi, et al., (2006)

A study was conducted in Iran with the title: **"Postpartum Depression and its Correlates Among Women Living in Zabol (Iran)".**

The aim of the study was to determine the prevalence and risk factors of postpartum depression among women living in Zabol. The study sample was derived from big maternity wards in five health centers in Zabol. Subjects consisted of 408 women within the age range of 15-46. All of the women in the period of 2 to 8 weeks following their delivery were selected from 2003 to 2005 the tool used was Beck Depression Inventory.

The study found that PPD prevalence was 40.4 %. Risk factors for the onset of post-partum depression were younger age, low income families, unemployment, history of depression, lack of family support and relationship difficulties with spouse, parents or parents-in-law. Type of delivery, number of pregnancies, number of deliveries, satisfaction with sex of the baby, and number of children, were not associated with occurrence of PPD.

The study of Ockatan, et al, (2006)

The study titled**: "Antepartum and Postpartum Depression in a Primary Health Care Centre Area".**

The aim of the study was to follow depression scores of pregnant women after delivery and to determine factors associated with depression mood in a primary health care center.

In the study all pregnant women (n=66) living in Park Health Center Region in Ankara, completed a questionnaire and Edinburgh Postnatal Depression Scale (EPDS) once in pregnancy and twice in postpartum period at 2nd week and 6th month. EPDS scores above cut off point > 13 indicated possible depressive mood.

The result of the study was as follows, mean EPDS score in pregnancy was higher than both postpartum measurements (p=0.054, p=0.003 respectively). Number of women with EPDS scores above cut-off was as follows: 31.8% during pregnancy, 22.7% at postpartum 2nd week, 19.7% at postpartum 6th month. Associated factors with postpartum depressive mood were type of delivery and working status <0.05).

The study pointed out that women are at risk for depressive disorders not only in postpartum period but also in pregnancy. Healthcare providers should consider possibility of depression in pregnant women.

The study of Ross, et al., (2006)
The study titled: **"Demographic Characteristics of Participants in Studies of Risk Factors; Prevention, and Treatment of Postpartum Depression".**

The objectives of the study were to examine the demographic characteristics of participants in previously published studies and to document existing gaps in the current literature. Moreover, meta analysis has found that socio demographic variables are not strong predictors of postpartum depression. However, no studies have systematically examined the extent to which the samples used in published research on postpartum depression have included sufficiently diverse samples of women to merit this conclusion. The method of this study was to extract age, ethnicity, relationship status, and socioeconomic status of 51453 participants from 143 studies previously selected for systematic literature reviews.

The result of this study was that few studies reported complete demographic data; however, existing data indicate that participants were predominantly aged 25 to 35 years, white, partnered, and of mid-or high- socioeconomic status.

The study of McCoy et al., (2006)
The title of the study: **"Risk Factors for Postpartum Depression: A Retrospective Investigation at 4-weeks Postnatal and a Review of the Literature".**

The aim of the study was to describe possible correlations between incidence of postpartum depression and the following patient characteristics: age, breastfeeding status, tobacco use, marital status, history of depression, and method of delivery.

The data of the study was gathered at routine 4 week postnatal visits were obtained from the patient records of 209 women who gave birth between June 1, 2001 and June 1, 2003, at three university medical clinics in Tulsa, Okla. Inclusion criteria required that the records of potential study subjects contain data on the characteristics noted as well as patient completed Edinburgh Postnatal Depression Scale forms.

The prevalence of PPD was (39%) (n=81) women whose EPDS results score was above 13 total. There was no significant difference by patient age or marital status at 4-weeks postnatal.

The results were as follows: formula feeding in place of breastfeeding, a history of depression, and cigarette smoking were all significant risk factors for an Edinburgh Postnatal Depression Scale score of 13 or higher, indicating probable postpartum depression.

The study of Frances A. et al., (2006)
The study title: **"Cesarean Section and Postpartum Depression: A Review of the Evidence Examining the Link".**

The aim of this study was to examine the evidence for an association between cesarean section and postpartum depression.

Medline and PsychInfo databases were searched. All studies on cesarean section that evaluated maternal mood between 10 days and 1 year after delivery were reviewed. Nine methodologically superior studies, including the only randomized, controlled trials (RCT), were analyzed separately. The nine studies that provided adequate summary statistics were combined in a meta-analysis.

Of the 24 studies that have examined the association between cesarean section and postpartum depression, five found a significant adverse association, 15 found no significant association or mixed evidence for an association between cesarean section and postpartum depression. Meta-analyses of suitable studies failed to find evidence for a significant association between cesarean section and postpartum depression. Possible reasons why different studies have obtained different results are critically evaluated. As a conclusion of the study a link between cesarean section and postpartum depression has not been established.

The study of Wissart et al., (2005)
The title of the study was: **"Prevalence of Pre-and Postpartum Depression in Jamaican Women".**

The aims of the study were to find out the prevalence of prepartum and postpartum depression and the risk factors associated in a cohort of Afro-Jamaican pregnant women in Jamaica. The Zung self-rating depression scale was administered to 73 healthy pregnant women at 28 weeks gestation and at 6 weeks postpartum for quantitative measurement of depression. One hundred and forty healthy Afro-Jamaican pregnant women attending antenatal clinic in the Department of Obstetrics, Gynecology and Child Health, University Hospital of the West Indies, Jamaica during the period of May 2000 to February 2001 consented to participate in this study. However, the study demonstrated depression prevalence rates of 56% and 34% during prepartum and postpartum period.

The study of Verkerk, et al., (2005)
The title of the study: **"Personality Factors as Determinants of Depression in Postpartum Women: A Prospective 1-Year Follow-up Study"**

The aim of the study was to focus on neuroticism and introversion in the prediction of postpartum depression. In a population based prospective study, women were screened during mid-pregnancy on standard risk factors for depression. In a group of randomly selected women (n=277), neuroticism and introversion were measured at 32 weeks gestation. Clinical depression (Research Diagnostic Criteria) and depressive symptoms (Edinburgh Postnatal Depression Scale) were measured at 32 weeks gestation and at 3, 6 and 12 months postpartum.

The results were as follows: high neuroticism was associated with an increased risk of clinical depression and depressive symptoms during the postpartum period. The combination of high neuroticism and high introversion was the only independent predictor of clinical depression across the first year postpartum (odds ratio: 3.08, 4.64, and 6.83 at 3, 6, and 12 months postpartum, respectively, $p < .05$-.01), even when controlling for clinical depression during pregnancy. History of depression was the only other independent predictor during the early but not during the late postpartum. Inclusion of personality not only significantly improved the detection of women at increased depression risk but also the identification of women with and extremely low depression risk.

As a conclusion of the study, personality may be an important and stable determinant of postpartum depression. The combination of high neuroticism and high introversion considerably improved the risk estimates for clinical depression across the first year postpartum.

The study of Gavin et al., (2005)

The study title: **"Prenatal Depression: A Systematic Review of Prevalence and Incidence".**

The objective of the study is to systematically review evidence on the prevalence and incidence of prenatal depression and compare these rates with those of depression in women at non childbearing times.

The data source was by searching MEDLINE, CINAHL, PsycINFO, and Sociofile for English-language articles published from 1980 through March 2004, conducted hand searches of bibliographies, and consulted with experts.

The studies included cross-sectional, cohort, and case-control studies from developed countries that assessed women for depression during pregnancy or the first year postpartum with a structured clinical interview.

Of the 109 articles reviewed, 28 met the inclusion criteria. For major and minor depression (major depression alone), the combined point prevalence estimates from meta-analysis ranged from 6.5% to 12.9% (1.0-5.6%) at different trimesters of pregnancy and months in the first postpartum year. The combined period prevalence shows that as many as 19.2% (7.1%) of women have a depressive episode (major depressive episode) during the first 3 months postpartum; most of these episodes have onset following delivery. All estimates have wide 95% confidence intervals, showing significant uncertainty in their true levels. No conclusions could be made regarding the relative incidence of depression among pregnant and postpartum women compared with women at no childbearing times.

The Study of Lee, et al (2004)
The title of the study was: **"Ethnoepidemiology of Postnatal Depression: Prospective Multivariate Study of Sociocultural Risk Factors in a Chinese Population in Hong Kong".**

The aim of the study was to investigate the sociocultural risk factors of postnatal depression using ethnographically informed epidemiological methods.

A total of 959 women were assessed at their first anti-partum visit (baseline), in the third trimester, immediately after delivery, and 3 months postpartum. Six domains of risk factors were examined. The dependent variable was postnatal depression (as defined by the Edinburgh Postnatal Depression Scale) at 3 months postpartum.

The results of the study were as follows; conflict with mother in-law, marital dissatisfaction, past depression and antenatal depression independently predicted the

occurrence of postnatal depression. The cultural practice of Peiyue- a Chinese postpartum custom of mandated family support was associated with better social support and a slightly lower risk of postnatal depression.

The study of Inandi, et al., (2002)
The title of the study: **"Risk Factors For Depression in Postnatal First Year, in Eastern Turkey".**

The aim of the study was to evaluate women from Eastern Turkey in postnatal one-year period in order to analyze the risk factors for depression. A Cross sectional study was conducted to analyze the risk factors for postpartum depression.

In this cross-sectional study, multi-centre study, the researchers selected a study sample from five eastern provinces. Among 2602 randomly selected women who gave birth within the last year, we included 2514 women in our analysis. The Edinburgh Postnatal Depression Scale was used for the evaluation of depression.

The percentage of women with high depression scores was 27.2%. Excess risk of depression was associated with several factors including unemployment, low education, poverty, poor family relations, low marital age, lack of medical services, and mental health problems.

The study of Patel, et al., (2002)
The study title: **"Gender, Poverty, and Postnatal Depression: A study of Mothers in Goa, India".**

This study described the natural history of depression in mothers who recently gave birth in a low income country and to investigate the effect of risk factors, particularly related to infant gender bias, on the occurrence and outcome of depression.

The authors studied a group of pregnant mothers recruited during their third trimester of pregnancy from a district hospital in Goa, India. The mothers were interviewed at recruitment, 6-8 weeks, and 6 months after childbirth. Interview data included presence of antenatal and

postnatal depression, obstetric history, economic and demographic characteristics, and gender-based variables (preference for male infant, presence of marital violence).

Depressive disorder was detected in 59 (23%) of the mothers; 78% of these patients had clinically substantial psychological morbidity during the antenatal period. More than one-half of the patients remained ill at 6 months after delivery. Economic deprivation and poor marital relationships were important risk factors for the occurrence and chronicity of depression. The gender of the infant was a determinant of postnatal depression; it modified the effect of other risk factors, such as marital violence and hunger. Depressed mothers were more disabled and were more disabled and were more likely to use health services than non depressed mothers.

The study of Halbreich and Karkun, (2002)

The title of the study:**"Cross-Cultural and Social Diversity of Prevalence of Postpartum Depression and Depressive Symptoms".**

The prevalence of postpartum depression (PPD) is currently considered to be 10-15%. Most studies were performed with a brief unidimentional instrument (mostly the Edinburgh Postnatal Depression Scale-EPDS) with focus on depression and not on other symptoms and disorder. Most cited studies were conducted in Western economically developed countries.

The study methodology was reviewing the literature on prevalence of postpartum depression and depressive symptoms in a wide range of countries; the result was 143 studies were identified reporting prevalence in 40 countries. It is demonstrated that there is a wide range of reported prevalence of PPD ranging from almost 0% to almost 60%. In some countries like Singapore, Malta, Malaysia, Austria and Denmark there are very few reports of PPD or postpartum depressive symptoms, whereas in other countries (e.g. Brazil, Guyana, Costa Rica, Italy, Chile, South Africa, Taiwan and Korea) reported postpartum depressive symptoms are very prevalent.

The authors of this study believe that the widely cited mean prevalence of PPD (10-15%) is not representative of the actual global prevalence and magnitude of the problem, due to the wide range of reports.

The variability in reported PPD might be due to cross-cultural variables, reporting style, differences in perception of mental health and its stigma, differences in socio-economic environments (e.g. poverty, levels of social support or its perception, nutrition, stress), and biological vulnerability factors. The elucidation of the underlying processes of this variability as well as the diversity of postpartum normal versus abnormal expressions of symptoms may contribute to better understanding of the diversified ante, peri and postpartum phenomena.

The study of Josefsson et al., (2002)

The study title: **'Obstetric, Somatic, and Demographic Risk Factors for Postpartum Depressive Symptoms".**

The aim of the study is to identify and test the predictive power of potential independent risk factors of postpartum depressive symptoms during pregnancy and the prenatal period.
A case control study was conducted, where 132 women with postpartum depressive symptoms were selected as an index group and 264 women without depressive symptoms as a control group. Data related to socio demographic status, medical, gynecologic, and obstetric history, pregnancy, and perinatal events were collected from standardized medical records.

The strongest risk factors for postpartum depressive symptoms were sick leaves during pregnancy and a high number of visits to the antenatal care clinic. Complications during pregnancy, such as hyperemesis, premature contractions, and psychiatric disorder were more common in the postpartum depressed group of women. No association was found between parity, socio demographic data, or mode of delivery and postpartum depressive symptoms.

The study of Nielsen et al., (2001)

The study title: **"Postpartum Depression: Identification of Women at Risk".**

The aim of the study was to identify and test the predictive power of demographic, obstetric, and psychosocial risk factors of postpartum depression. A community-based follow up study based on questionnaire on past history of psychiatric disease, psychological distress and social support during pregnancy and depression at four months

after delivery. Obstetric files were collected at time of birth. The setting of the study was the antenatal care clinic and delivery ward, Aarhus University Hospital, Denmark. The sample of the study consisted of (6,790) women giving birth between January 1994 and 31 December 1995, who attended the antenatal clinic during pregnancy; 5,252 (78%).

The validation population comprised 528 women enrolled immediately prior to and after the study period. The main outcome measure: postpartum depression four months after giving birth assessed by the Edinburgh Postnatal Depression Scale.

The results were as follows: 5.5% of the women suffered from postpartum depression, corresponding to a score of 13 or higher on the Edinburgh Postnatal Depression Scale. Risk factors identified by multivariate logistic regression analysis included psychological distress in late pregnancy (OR 6.3 [95% CI 4.4-9.1]), perceived social isolation during pregnancy (OR 3.6 [95% CI 1.9-7.0]; high parity (OR 3.8 [95% CI 1.8-8.0]); and a positive history of pregnant psychiatric disease (OR 2.1 [95% CI 1.4-3.2]) No association was found between pregnancy or delivery complications, and postpartum depression.

The maximum predictive power of the identified risk factors was 0.3. According to these results, one out of three women who suffers from psychological distress in late pregnancy with perceived social isolation will develop postpartum depression. As a conclusion of this study antenatal focus on psychosocial wellbeing may help to identify women at risk of postpartum depression.

The study of Beck, (2001)
The title of the study: **"Predictors of Postpartum Depression: an Update"**

The purpose of this Meta analysis was to update the findings of an earlier meta-analysis of postpartum depression predictors that had synthesized the results of studies conducted mostly in the 1980 s.
A meta-analysis of 84 studies published in the decade of the 1990s was conducted to determine the magnitude of the relationships between postpartum depression and various risk factors. Using the software system Advanced Basic Meta-Analysis. Effect sizes were

calculated three ways: un weighted, weighted by sample size, and weighted by quality index score.

As a result, 13 significant predictors of postpartum depression were revealed. Ten of the 13 risk factors had moderate effect sizes while three predictors had small effect sizes. The mean effect size indicator ranges for each risk factor were as follows: prenatal depression (.44 to .46), self esteem (.45 to .47), childcare stress (.45 to .46), prenatal anxiety (.41 to .45), life stress (.38 to . 40), social support (.36 to .41), marital relationship (.38 to .39), history of previous depression (.38 to .39), infant temperament (.33 to .34), maternity blues (.25 to .31), marital status (.21 to .35), socioeconomic status (.19 to .22), and unplanned/unwanted pregnancy (.14 to .17).

Results confirmed findings of an earlier meta-analysis and in addition revealed four new predictors of postpartum depression: self esteem, marital status, socioeconomic status, and unplanned/ unwanted pregnancy.

The Study of Yonkers and others, (2001):
The title of the study: **"Onset and Persistence of Postpartum Depression in an Inner-City Maternal Health Clinic System".**

The aim was to determine whether the risk factors for and rate of postpartum major depressive disorder in a predominantly African American and Hispanic clinic population would be similar to those reported for Caucasian women.

Investigators systematically screened all women scheduled for their first postpartum visit on selected days at four publicly funded inner-city community maternal health clinics in Dallas County (N= 802). A multistage screening process included the Edinburgh Postnatal Depression Scale, the Inventory of Depressive Symptomatology, and the structured Clinical Interview for DSM-IV for a maximum of three assessments during the initial 3-5 week postpartum period.
The estimated rate of major depressive disorder during the postpartum period among women in this setting was between 6.5% and 8.5%. Only 50% of the depressed women reported onset following birth. Bottle –feeding and not living with one's spouse or

significant other were associated with depression at the first evaluation; persistent depressive symptoms were linked with the presence of other young children at home. Greater severity of depressive symptoms at first contact predicted major depressive disorder several weeks later.

The study of Glasser et al., (1998)

The title of the study**: "Prospective Study of Postpartum Depression in an Israeli Cohort: Prevalence, Incidence and Demographic Risk Factors".**

The study aimed to assess the prevalence and incidence of postpartum depression (PPD) and to identify risk factors in a community cohort of Israeli-born, as well as new and immigrant women**.** A random sample of 288 registrants at community clinic were assessed for depressive symptoms at 26 weeks' pregnancy using the Beck Depression Inventory (BDI) and at 6 weeks postpartum using the Edinburgh Postnatal Depression Scale (EPDS).

Information regarding risk factors was gathered through interviews and medical record abstracting. The prevalence of PPD was 22.6%. Two third of the women had scored "depressed" during pregnancy, and one third (6.9%) were new incident cases. Immigrant status was the only significant demographic predictor of PPD identified by either univariate or multivariate analysis, with Russian new immigrants having over twice the risk for PPD as Israeli-born subjects.

The rate of PPD in this Israeli cohort was comparable to that found in other countries. The finding that immigrant's status was the most potent demographic predictor may support the role of stressful life events in the etiology of PPD. The use of the EPDS for PPD screening was found acceptable and feasible in primary health setting.

The study of Fisch et al., (1997)

The title of the study: **"Postnatal Depression: a Prospective Study of its Prevalence, Incidence and Psychosocial Determinants in an Israeli Sample".**

The aim of the study was to investigate the prevalence, incidence of PPD and psychosocial determinants in an Israeli sample.

A prospective study of prevalence, incidence and psychosocial determinants of postnatal depression in an Israeli sample of 327 randomly selected pregnant women on the first or second postpartum day and again 6 to 12 weeks later. The questionnaire comprised a psychosocial, demographic self report, and the 10 item Edinburgh Postnatal Depression Scale (EPDS). The result at first time the prevalence of postnatal depression was 9.9-22.3%, and at second time it was 5.2-12.5%. Four of the psychosocial determinants examined correlated significantly with depression at both times the results that postnatal depression was less common than in most reported series. It was related to marital and social support, the circumstances of the pregnancy, and the degree of religious observance.

The study of Ramirez et al., (1997)
The title of the study: **"Puerperal Depression, Related Factors".**

The aim of the study was to find the prevalence of postnatal depression in puerperal women in the city of Albacete and to analyze its association with social and demographic factors, morbidity and social and affective support. However, Observational cross over study with a home interview of 304 women who gave birth at Albacete in general hospital between May and November 1995.

The presence of possible depression between the sixth and eighth weeks after giving birth was measured with a self administered test, the Edinburgh Postnatal Depression Scale (EPDS), on which scores of 13 or more are considered to signal depression. fifteen point eight percent of the women surveyed suffered a probable depressive disorder according to the EPDS.

A significant association was found between puerperal depression and history of depression before during pregnancy and immediately after delivery. Puerperal depression was also associated with stated chronic illness, scant help with domestic tasks and low family support. The prevalence of postnatal depression was between 11.8% and 19.8% of women between the sixth and eighth week of the puerperal period, which is linked to depression immediately after delivery.

The study of Weinberg et al., (1997) The title of the study: **"Maternal Depression and Infant Maladjustment: a Failure of Mutual regulation".**

The aim of the study was to survey the prevalence of postnatal depression and demographic factors associated with it in a Swedish population. A community sample of 1,584 women was screened at 8 and 12 weeks postpartum using the Edinburgh Postnatal Depression Scale (EPDS).

The point prevalence of depression, using a threshold of 11/12 on the EPDS, was 12.5% at 8 weeks and 8.3% at 12 weeks postpartum was 4.5%. A significantly increased risk of postnatal depression was found for single women. Parity, maternal age and occupational status not found to be related to postnatal depression. The findings suggest that screening for postnatal depression is feasible at the time of postnatal checks on the baby, and that it can aid in the identification of women at risk for depression. A two stage screening procedure will identify women at risk for more persistent postnatal depression.

The study of R Warner et al., (1996)
The title of the study: **"Demographic and Obstetric Risk Factors for Postnatal Psychiatric Morbidity".**

The Edinburgh Postnatal Depression Scale (EPDS) was used to screen a systematic sample of 2375 women, six to eight weeks after delivery. Information on socio-demographic and obstetric variables was collected at the screening interviews. The risk factors associated with high EPDS scores (>12) were determined and entered stepwise into a regression model.

The study sample was initially recruited from postnatal wards on two maternity units in south Manchester. Women were approached prior to discharge on alternate weekdays for a 20 month period from May 1993 to February 1995 and asked to agree to a home visit 6-8 weeks after delivery. The primary purpose of the visit was to identify women with postnatal depression who were then asked to join a treatment trial.

The screening visit consisted of a short interview collecting information about the age, occupation and marital status of the mother and details of parity, family size and obstetric complications associated with the current pregnancy. The results of the study were as follows: four independent variables were found to be associated with an EPDS score above the threshold. These were an unplanned pregnancy (OR 1.44); not breast-feeding (OR 1.52), and unemployment in either the mother, i.e. no job to return to following maternity leave (OR 1.56), or the head of household (OR 1.50). These four variables appeared to explain the risk associated with other risk factors.

2.10 Summary of previous studies:

Postpartum depression is an important affective disorder that does not affect only women suffering from it, but also their infants and whole families. Therefore, it is an important topic to study.

Despite, the many different studies about PPD conducted in the developed world and others in the developing world, yet, studies conducted in the Arab world were countable, and few of them were conducted in the Arab Palestinian society, whether in the Palestinian Authority in the West bank or Gaza strip. However, in Jerusalem this would be the very first study conducted among Arab Palestinian women.

The prevalence of PPD among women was between 5.5% according to (Neilsen et al., 2001) up to (65.3%) as Abdallah, (2007) reported. This variation may be due to the country and culture of participant to the concept, and study methodology, tools used and the sample size of the study besides the time of recruitment of participants postpartum. However, the prevalence in the developing world is higher than other countries. Moreover the prevalence in local studies was even higher than prevalence in the developing countries.

The aim of the current study which is assessing the prevalence of PPD among women agrees with some Local and Arab studies; However, locally the study of (Abdallah, 2007) had the same aim, and the Moroccan study of Alami et al., (2006). as well as, the Lebanese study of Chaaya, et.al., (2002) and the study of Abou-Saleh et al., 1997 which was conducted in the city of Dubai in the United Arab Emirates.

As for the foreign studies with the same aim, the study of Tannous et al., (2008), Segre et al., (2007), and the Irani study of Kiomars Najafi et al. (2007); besides, the New Zealand study of Abbott and Williams (2006). Moreover, the Pelatos study of Moraes and collegues (2006). Nevertheless, Sadeghi study (2006) which was conducted in Zabol (Iran), the study of Wissart and collegues, (2005) in Jamaica, as well as the study of Gavin et al., (2005).

Mainly studies were either investigating the prevalence of PPD among women, and others were mainly interested of the correlated risk factors and predictors associated with the PPD. However, other studies were more interested in the psychosocial determinants as the studies of Abou-Saleh et al.,(1997) and (Fisch et al, 1997).

Thirteen significant predictors of postpartum depression were revealed in a meta analysis study of Beck, 2001. Ten of the 13 risk factors had moderate effect sizes while three predictors had small effect sizes. The mean effect size indicator ranges for each risk factor were as follows: prenatal depression, self esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, history of previous depression,infant temperament, maternity blues, marital status, socioeconomic status and unplanned/ unwanted pregnancy.

Some of the previous studies agree upon some demographic risk factors, as follows:

Unemployment, low education, mother's young age, undesired gender of the child, unplanned pregnancy, and history of depression were the main risk factors of postpartum depression according to Kheirabadi et al., (2009). However, history of depression, low education, primiparity, unplanned pregnancy, and undesired gender of the child had the highest risk score for postpartum depression in this group of Iranian women.

The study of Kheirabadi et al., (2009) while lower incomes and educational levels were the most significant demographic risk factors in the study of Buist et al (2008). Prevalence of postpartum depression was significantly higher in financially poor relative to financially affluent women in Segre et al., (2007).

A significant association was found between puerperal depression and history of depression before, during pregnancy and immediately after delivery. Puerperal depression was also associated with stated chronic illness, scant help with domestic tasks and low family affective support and prevalence of postnatal depression between 11.8% and 19.8% of women between the sixth and eighth week of the puerperal period, which is linked to depression immediately after delivery (Machado et al., 1997)

Finally , and as known to the researcher this would be the first study to examine the prevalence of postpartum depression among Arab Palestinian women living in East Jerusalem.

Chapter Three

Methodology

3.1 Introduction:

This chapter examines the methodological approach used in this study to illuminate its central questions.

3.2 Study Design:

Quantitative approaches have been shown to provide the sort of experiential understanding that the study aims to achieve. Hence, a descriptive/cross-sectional study was conducted to answer the study's main questions and achieve its objectives. The cross-sectional study design allows the researcher to do a fast study and to examine a large number of subjects at a little cost or effort. It also allows the researcher to study groups of subjects that belong to sectors, categories and representative samples. More importantly, this kind of design is efficient for identifying any association between dependent and independent variables.

3.3 Study Population:

The study population included Palestinian women who gave birth and registered in MCHC clinics between June 2008 till July 2009, who lived in East Jerusalem, inside

the Israeli separation wall, and received Mother and Child Health services during the time of data collection. However, the overall population was (3370) mothers from all the four MCHC during June 2008/ till July/2009.

3.4 Study Sample

The sample of the study was derived from the four selected Mother & Child Health Care Centers in East Jerusalem in the year 2009 which were as follows:

3.4.1 Israeli Governmental Centers:

These centers are called "Tipat Halav," which means (drop of milk). There are 6 MCHCs in East Jerusalem, located in Shu'fat, Sheikh Jarrah, At-Tur, Sur Bahir, Jabal el Mukaber and Beit Safafa.. They offer services to pregnant women and children (0 – 5 years old). For example, they check pregnant mother, administer infant vaccinations and offer follow up guidance concerning weight gain, development, hearing and vision, and schedule pediatrician visits.

3.4.2 Non Governmental Centers:

These centers can be divided into three types based on their affiliation: Palestinian Red Crescent, UNRWA, and Spafford.

- **The Palestinian Red Crescent (Al-Hilal):**

  PRC is one of the latest and reliable providers of health care and social services. There is one main clinic in Jerusalem that offers its services to pregnant women and children (0-2 years old), including vaccination and follow up on development.

- **Spafford:**

Theres is one Spafford center which provides services for mothers and infants. Babies are brought by their mothers for routine checking and immunization only for the first 2 years of child's age.

- **United Nation Relief and Works Agency (UNRWA):**

UNRWA's health programme focuses on primary health care services, with special emphasis on maternal and child care, as well as disease prevention and control. Women who are registered as refugees may seek their services for immunization for the first 2 years of a child's age. There are two centers in Jerusalem (inside the political separation wall) providing these services:

1. Alzawyeh (Bab Assahera/ old city of Jerusalem)
2. Shu'fat Refugee camp.

3.5 Sampling Procedures

In order to select the study sample, 3 sampling procedures were used.

3.5.1 Procedure One

All MCHC were classified according to their affiliation as follows: governmental, non-governmental, and UNRWA as shown in table (3.1)

Table 3.1: Main Mother and Child Health Centers in Jerusalem according to kind of population served

Center	Organization	Location	Clients served
Shu'fat	Gov	Shu'fat, Main Street	Arabs
Sheikh Jarrah	Gov	Sheikh Jarah Kupat Holim,	Arabs
At-Tur	Gov	Mount of Olives	Arabs
Sur-Baher	Gov	Sur-Bahir	Arabs
Jabal El Mukaber	Gov	Jabal El Mukaber, Main Street.	Arabs & Jews
Beit-Safafa	Gov	Beit Safafa	Arabs & Jews
Al-Hilal (PRC)	NGO	Jerusalem, near Ashabat-al moslemat school.	Arabs
Spafford Children Center	NGO	Old city	Arabs
Al-Zawyeh	UNRWA	Old city	Arabs
Shu'fat Camp	UNRWA	Shu'fat Refugee camp	Arabs

3.5.2 Procedure two:

Since the study is interested in Palestinian women only, two governmental MCHC, Jabal-El Mukaber and Beit-Safafa, were excluded from the population because they serve both Arabs and Jews. A sample of 4 MCHC clinics out of 8 clinics was chosen by a raffle: Shu'fat and Sur-Baher (governmental), Al-Hilal (non governmental) and Al-Zawyeh) (UNRWA)

3.5.3 Procedure Three

All mothers who attended one of the 4 clinics and whose infants' age was between 1 month and 12 months, were selected as the whole sample population. The determination of the sample size at 95% confidence level and marginal error of less than 12.5% of the standard deviation of the study population was according to the following formula:

$$n \geq \left[\frac{Z_{\alpha/2}\,\sigma}{0.125\,\sigma}\right]^2 = \left[\frac{1.96}{0.125}\right]^2 \cong 246$$

The questionnaires of the study had been distributed to the selected MCHC in a stratified (accidental) sample according to the relative frequency (10%) of the mother's attending these 4 mentioned MCHC. Anyhow, the original sample size of the study was 320 women.

3.5.4 Inclusion in the sample:

Participants who orally agreed to participate in this study.
Participants who had completed the demographic questionnaire and the Arabic version of the Edinburgh Postnatal Depression Scale (EPDS).

3.5.5 Exclusion from the sample

Participants who refused to participate in the study (total number 30)
Participants living in Jerusalem but outside the Israeli separation wall (total number 16).
Only 274 participants accepted to participate in the study. The questionnaires were distributed to (10%) in consideration of the general prevalence of PPD in the world (10-15%) as follows:

Table 3.2: Distribution of the questionnaires to the participants

MCHC	Children vaccinated monthly	10% of the total **(396)**	Questionnaire distributed (Main sample size)	Questionnaires excluded	Questionnaires included
PRC (Al-Hilal)	230	0.58	185	24	161
Al-Zawyeh	70	.018	58	8	50
Shu'fat	56	0.14	45	7	38
Sur-Baher	40	0.10	32	7	25
Total	**396**	100%	**320**	46	274

3.6 Demographic Characteristics of the Participants in this Study:

The distribution of the frequencies and percentages will be tabled according to the demographic variables of the current study as follows:

3.6.1: Age:

Table 3.3: Distribution of participants according to their age

Age group	Frequency	Percent
15-19	20	7.3
20-29	160	58.4
30-39	83	30.3
40-49	11	4.0
Total	274	100.0

Thirty nine point four percent (39.4%) of the participants were living in the Northern area of Jerusalem, 31.4% in the southern area, and 14.2% were in the middle area, 6.6% of them

lived inside the old city, and 8.4% lived in camps, it is worth mentioning the political wall was not yet built around Suh'fat camp during the data collection.

3.6.2 Marital status:

Table 3.4: Distribution of participants according to their marital status

Marital Status	Frequency	Percent
Married	259	94.5
Previously married	10	3.7
Missing	5	1.8
Total	274	100

Almost all of the participants were married (94.5%) while only (3.7%) of them were previously married, separated, divorced or widowed.

3.6.3 Residence locality:

Table 3.5:Distribution of participants according to their residence locality

Residence	Frequency	Percent
Inside old city	18	6.6
Southern area	86	31.4
Middle area	39	14.2
Northern area	108	39.4
Camp	23	8.4
Total	274	100

Thirty nine point four percent (39.4%) of the participants were living in the northern area of Jerusalem, 31.4% in the southern area and 14.2% were in the middle area, 6.6% of them lived inside the old city, and 8.4% lived in camps, it is worth mentioning the political separation wall was not yet finished building around Shu'fat Camp during the data collection.

3.6.4 Dwelling property

Table 3.6: Distribution of participants according to their dwelling property

Dwelling	Frequency	Percent
Owned	119	43.4
Rented	155	56.6
Total	274	100

Over half of the participants own their place of residence (56.5%), while the rest live in rented houses.

3.6.5 Family type

Table 3.7: Distribution of participants according to their family type

Family type	Frequency	Percent
Nuclear	242	88.3
Extended	32	11.7
Total	274	100

As shown in table 3.7 above, most of the participants live in nuclear families (88.3%), while only 11.7% live with extended families.

3.6.6 Participants educational level

Table 3.8: Distribution of participants according to their education level

Education level	Frequency	Percent
Primary	74	27.0
Secondary	86	31.4
College	114	41.6
Total	274	100

As table (3.8) shows, about 41.6% of the participants got college education, while 27% of them got only primary education and 31.4% got secondary education.

3.6.7 Participants labor status

Table 3.9: Distribution of participants according to their labor status

Labor status	Frequency	Percent
Employed	56	20.4
Unemployed	216	78.8
Missing	2	0.8
Total	274	100

Most of the participants were housewives 78.8%, while only 20.4% were employed.

3.6.8 Labor status after delivery

Table 3.10: Distribution of participants according to their labor status after delivery

Labor status after delivery	Frequency	Percent
Work during pregnancy and after delivery	42	15.3
Work during pregnancy and stopped after delivery	14	5.1
of Didn't work during pregnancy or after delivery	199	72.6
Didn't work during pregnancy and worked after delivery	2	0.7
Missing	17	6.2
Total	274	100

As it may be noticed in table (3.10), 72.6% of the participants didn't have work before or after delivery, of the working mothers; 5.1% of the working mothers quit their jobs after delivery, 15.3% of them worked before and after delivery, compared to only 2 mothers (0.7%) who work after delivery.

3.6.9 Participants family income

Table 3.11: Distribution of participants according to their family income (NIS)

1500-2500	27	9.9
2501-3500	55	20.1
3501-4500	121	44.2
Over 4500	67	24.5
Missing	4	1.5
Total	274	100

Most of the participants (44.2%) income was around (3501-4500), and 24.5% of them are more than 4500. The rest of the participant's income was less than 3500 New Israeli Shekels. The monthly income for more than 60% of the participants was over 3501, while the rest earned less than 2500 NIS per month.

3.7 Study Instrument

The main measuring tool was the Edinburgh Postnatal Depression Scale (EPDS). In addition, another questionnaire was used to obtain the demographic data of the study.

- **Demographic and Socioeconomic Questionnaire**: consists consisted of 24 questions as shown in Appendice (3.1)

- **The Edinburgh Postnatal Depression Scale (EPDS)**

  EPDS is a measurement tool developed by Cox and his colleagues. in 1987 at health centers in Livingston and Edinburgh. It was designed to assist primary care health professionals to detect mothers suffering from depression during the postpartum (postnatal) period (Cox and Sagovsky, 1987). EPDS, however, does not claim to provide information about the severity of the depression (Cox and Sagovsky, 1987). Its aim is to screen the risk of postpartum depression in women, rather than diagnose depression (Karacam & Kitis, 2008). Moreover, EPDS cannot by itself confirm a diagnosis of PPD (Willinck & Cotton, 2004).

Though EPDS was originally designed to for women in postpartum period, yet when it is used with men or non-postnatal women, the scale is referred to as the Edinburgh Depression Scale EDS (Montazeri, et al., 2007).

EPDS consists of 10 short statements with four possible responses to each statement. For each statement, the participant checks the response which is closest to how she has been feeling during the week prior to responding to the questionnaire (Cox et al., 1987).

Responses to EPDS are scored on a 4-point scale (0 – 3) indicating an increase in the severity of the symptom. The total score is calculated by adding the scores for each of the 10 items. The score can range from 0 to 30. (Teissedre & Chabrol, 2004).

The statements on EPDS assess a variety of psychological states, disorders, etc… Statement 1 and 2 aim to assess anhedonia, 4 anxiety, 5 fear of panic, 6 inablility to cope, 7 difficulty sleeping, 8 sadness, 9 tearfulness and 10 self harm ideas Appendice (3.2).

In some countries, like the United Kingdom, the EPDS is administered systematically to all postnatal women to ensure early detection of an eminently treatable condition (Lee, et al., 2000)

3.8 Reliability and Validity of EPDS in different countries

Eberhard et al., 2001 reviewed large community surveys shown EPDS to have strong validity and reliability. Anyhow, 18 validation studies of both the original English language version of EPDS and the version translation into numerous languages. However, the cut-off scores for detecting major depression varied from 9 - 13. The sensitivity and specifity estimates also varied from 60 to 100% and from 49% to 100%, respectively (Leverton et al., 2000).

3.8.1 Validity:

A recent review of validated studies of EPDS concluded that most reviewed studies showed high sensitivity for the EPDS, although uncertainty remained regarding the comparability between the sensitivity and specificity estimates of the different EPDS versions (Muntazeri, et al., 2007). It has been validated by a number of studies, both during pregnancy and after delivery, the largest of which was the Cambridge study that was published in 1990, www.pndtraining.co.uk, 2002. It has also been validated for use in postpartum studies of women in several other countries (Areias et al., 1996); (Miller et al., 2006); (Montazarei et al., 2007); (Werrett & Clifford, 2006).

Another study on British mothers, which found that a 12.5 cutoff score identified over 80 percent of the mothers with major depression and about 50% of the mothers with minor depression, and had a sensitivity value of 67.7%. Another study found a score of 9.5 or higher to be more appropriate for identifying depression among Chinese mothers (Cox, et al., 1993).

According to Wan et al., (2003), EPDS was found to have good internal consistency (Cronbach's Alpha = 0.86) and split half reliability (Spearman split half coefficient = 0.83). The instrument also showed to be satisfactory discriminant and to have concurrent validity as evidenced by the statistically significant difference in EPDS scores between the depressed group and their non depressed counterparts (Mann Whitney U test: 2 tailed p value <0.01), and good correlations between the instrument and both the Malay version of BDI-II and the HRDS-17 (Spearman rank correlation coefficients of 0.78 and 0.88 respectively).

The validation study of the Lithuanian version of EPDS found that the internal consistency of EPDS using Cronbach's Alpha coefficient was 0.83, indicating good reliability for a screening instrument. The same study found that EPDS is an optimal screening instrument for severe depressive disorder when cut-off score of 12 and more is used with a sensitivity of 95% and area under the receiver operating characteristic (ROC) curve of 0.94 (Bunevicius, et al., 2009)

A study in Nepal performed on a random sample of women 2 to 3 months postpartum found optimal EPDS cut-off score of 13 and more for screening for postpartum depression, (Bunevicius, et al., 2009).

Validity of the Turkish version of EPDS was 84% for sensitivity and 88% for specificity; Cronbach's Alpha-based agreement for this cut-off point was 0.79 and the correlation coefficient was 0.80 using the split half method, (Inandi, et al., 2002).

The study of Santos, et al., (2007) in Brazil, has shown that the validity of EPDS should be interpreted in light of the use for which it is intended. EPDS is adequate as a screening instrument using the >10 cut-off point, especially among selected populations of mothers at high risk of postpartum depression.

The Iranian version of the EPDS was found to be acceptable to almost all women. Cronbach's Alpha coefficient (to test reliability) was found to be 0.86. In addition, test-re/test reliability was performed and the intraclass correlation coefficient was found to be 0.80. Validity as performed using known group's comparison showed satisfactory results (Muntazeri, et al., 2007).

The advantage of EPDS is specificity for postpartum depression, in addition to documented validity and reliability across several countries, such as Australia, the Netherlands, Portugal, and Sweden, and in several languages (Teissedre & Charboul, 2004). However, the validity of EDPS has been widely documented. The internal consistency of EPDS has previously been found to be satisfactory (Teissedre, & Charboul, 2009).

3.8.2 Reliability

The EPDS with a cut-off score of >12 has previously been shown to have high sensitivity, specificity and positive predictive power for PND (Cox et al., 1987) ; (Johnstone et al., 2001). Evans et al., (2001) reported that a score of equal to or greater than 13 gave the best estimate of prevalence of antenatal and postnatal depression. Matthey et al., (1997) stated that the cut-off points are different for different languages

and cultures. Therefore, when language versions other than English are used, the scores should be interpreted carefully (Muhammad, 2007).

Small et al., (2007) compared the performance of EPDS across different population samples in Australia: (i) women born in Australia or in another English speaking country (n=1166); (ii) women born in non-English speaking countries who also completed EPDS in English in the same survey (n=142); and (iii) women born in Vietnam (n=103), Turkey (n=104) and the Philippines (n=106) who completed EPDS 6-9 months after birth in translation in the Mothers in a New Country Study (MINC) study (n=313).

This study concluded that the good item consistency of EPDS and the relative stability of the factor patterns across the samples are indicative that the scale is understood and completed in similar ways by women in these different English speaking and non-English speaking population groups. With the proviso that careful translation processes and extensive piloting of translations are always needed, these findings lend further support to use of EPDS in cross-cultural research on depression following child birth (Small. et al., 2007).

In sum, slightly different EPDS cut-off scores have been suggested for several translated versions. This is a common issue with most translated tools and not just EPDS and, therefore, should not be considered a serious limitation. The different cut-off scores reinforce the need for clinical judgment and caution when interpreting score with non English speaking mothers or women from diverse cultures. It also suggests that among non-English speaking mothers, only a validated translation may be assumed to give scores that have the same meaning as those from original English version (Cox & Holden, 2003).

Finally, it should be noted that most investigations validating EPDS incorporate Caucasian or homogenous samples in native countries. Nevertheless, limited research has been conducted psychometrically to test EPDS in a recently immigrated sample or heterogeneous population (Dennis, 2003).

3.8.3 Reliability and Validity of EPDS in Arab Countries:

In a Jordanian study of PPD among primiparous women, Cronbach's Alpha- reliability coefficient for internal consistency was 0.87. According to George and Mallery (2003) the acceptable value of Cronbach's Alpha is above 0.70. This means that EPDS in the Jordanian study was reliable for use in Jordan (Oweis, 2001). The Jordanian community is similar to the Palestinian community in its traditions and culture so it won't be surprising if the instrument was reliable in the Palestinian community as well.

Chaaya, et al., (2002) conducted a study in Lebanon using the validated Arabic version according to Ghubash & Abou Saleh, (1997). The Arabic version of EPDS is a reliable and valid screening tool for depression in postpartum women. The sensitivity and specificity of the scale were 73% and 90% respectively. However, using a cut-off score of 10, the sensitivity of the scale rose to 91% without much fall in its specificity (84%). The internal reliability of the scale was 0.84. EPDS was also found to be valid and reliable by Alami, et al., (2006) in Morocco as well.

Sammour (2002), showed that determination or EPDS' internal consistency of EPDS can be measured depending on the panel of experts, long clinical experience in treatment of psychiatric disorder, reviews of literature, and previous research in postpartum depression. Then its statistical validity was measured in a random sample of 60 mothers by measuring the correlation coefficient between every item and the total scores of scale, which showed that the tool was valid in the sample of the study and its community.

3.9 Pilot Study

The pilot study was done in June 2009 using the first draft of the demographic questionnaire and the translated adapted Arabic version of EPDS at the government MCHC in At-Tur MCHC. Ten women were asked to complete the questionnaire in Shu'fat Refugee Camp United Nation's MCHC clinic, and At-Tur governmental MCHC center.

However, The mothers in the pilot study shared their understanding of the questionnaires, and how they interpreted it. The feedback from those women included the following points:

Demographic questionnaire: Question number 17 included two options that were considered similar (number of abortions and infant deaths). The women in the pilot study recommended separating the question into two as some women have miscarriages while others have abortions The demographic questionnaire was corrected accordingly. One woman gave this note.

Some women had twins so another question was added, however, two women noted this.

EPDS Statement: In Question 8, three women distinguished between the epithets "ta'iseh" (miserable) and "mish mirtaha" (not comfortable), which were used in the statement as synonyms. These women believed the two words had different meanings in the Arab culture. One woman inquired whether Question 10 meant actually killing oneself, or just entertaining the thought of hurting oneself. As a result, the statement was made more specific by using an equivalent for "hurting oneself."

To preserve the validity of EPDS as an international scale, and to keep the translation as faithful as possible to the original but as culturally valid as possible, subjects' feedback were taken into consideration and the statements (or the choices) were modified accordingly, Appendice (3.3).

3.10 Reliability and Validity of EPDS in the current Study

3.10.1 Reliability Analysis

In order to evaluate the reliability of the study tools, the coefficient stability of the axes of the tool, and the instrument as a whole were calculated, as well as the researcher extracted factors of internal consistency for each axis of the tool by calculating the correlation coefficient between each paragraph of the resolution and the total score.

The results indicate that the survey is characterized by relatively acceptable psychometric reliability. The value of Cronbach's Alpha coefficient of the tool as a whole was (0.720). However, according to George and Mallery, (2003), the acceptable value of Cronbach's Alpha is above 0.70. Therefore, it is an accepted value indicating high stability in the scale and does not contradict itself; it also shows that the data has high reliability.

3.10.2 Validity:

The questionnaire was translated and adapted to the Jerusalem Arabic dialect. Several procedures were followed to ensure better accuracy and culture acceptance.

1. The researcher obtained the EPDS Lebanese Arabic version from Professor Monique Chaaya, of the American University of Beirut, who conducted a similar research in 2002 in Beirut and Beqa'a, Appendice (3.4).
2. The Lebanese Arabic version of the EPDS was then converted into the Jerusalem dialect.
3. In the meanwhile, the original English version of the EPDS was translated by a professional in English language, and then compared to the Arabic version of EPDS. The version was edited several times to make it as faithful to the Jerusalem Arabic dialect as possible so that it would be easily understood by the study participants, most of whom are natives of the Jerusalem Arabic dialect.
4. The last step was organizing a focus group with some new mothers in order to ascertain that the adopted Jerusalem Arabic version of EPDS was easily understandable to the participants and also to ensure better cultural understanding of difficult concepts.

3.11 The Strengths and Limitations of the EPDS.

3.11.1 Strengths of the EPDS:

EPDS is relatively short as it consists of only 10 items. As a result, it only takes a few minutes for most respondents to complete. This is important, as concentration is often

impaired during pregnancy, postnatal and in depression www.pndtraining.co.uk/articles/SRSB1.htm

With proper preparation and presentation, EPDS is highly acceptable to women. www.pndtraining.co.uk/articles/SRSB1.htm

EPDS is beneficial against most of other instruments used in screening for postnatal depressive symptoms because it is easy to administer and it evaluates psychological and cognitive but not physical symptoms of depression that are prevalent during pregnancy (Bunevicius, et al., 2009).

Although EPDS was originally designed for and validated among postnatal women, it has subsequently been found to be effective in detecting depression among antenatal women (Murray & Cox, 1990), among women with pregnancy loss (Lee et al., 1997), and among non-pregnant women in the general population (Cox, et al., 1996); (Lee, et al., 2001)

3.11.2 Limitation of EPDS:

EPDS is only as good as the person interpreting it. Where there is no, or inadequate training, individual health personnel will use it as best they can, but this may not be good enough www.pndtraining.co.uk/articles/SRSB1.htm

According to the Post-Natal Training (PND Training) official website, there other difficulties:

- Literacy: some people have difficulty reading. The scale was never meant to be read out to women, though occasionally it is
- Cultural issues: There are well-known problems with EPDS when used in other cultures.
- Misinterpretation of some questions: This is where understanding needs to be checked out, particularly in question number 10. Self-blame and thoughts of self-harm are common in depression and may highlight the individual's ability to downplay the severity of the symptoms

- Misuse: Over the years, EPDS has been used in a number of ways never originally intended, for example, being left in the house to be completed and either brought back to the clinic or collected at some later date. In such cases, there might be no assurance that the subject complete filling the questionnaire or not**.**

3.12 Data Collection procedures

1. Before starting data collection, approval was obtained from the head MCHC to get access to these centers, Appendice (3.5).
2. Three visits per week for each center were scheduled from July 1 to August 18, 2009 depending on the center's work peak.
3. Only women who agreed to be interviewed were included in the study sample. Also, only mothers of infants 1-12 months of age were included and the others were excluded.
4. The questionnaires of the study were administered by the subjects themselves, yet the researcher was present in case the participants needed assistance with interpretation. In general, literate mothers were able to complete the questionnaire with no mentioned complications in a mean time of six minutes. Two participants requested help due to difficulties reading and writing. Some participants sought help with their infants, or dictated the answers to the researcher while they held their infants.

3.13 Data Analysis

Statistical analysis was performed using the *Statistical Package for the Social Sciences* (SPSS) version 17:00. Descriptive statistics were used to examine the overall return rate of the questionnaire, the demographic characteristics of the sample, the overall prevalence of postpartum depression, and the prevalence of depressed mood by each demographic characteristic.

Validity was determined by comparing the mean EPDS score of different levels with one-way analysis of variance (ANOVA) and Pearson's & Spearman correlation coefficient. As an inferential statistical technique, the Kendall's W Test and chi-square test were used. When the conditions to carry out the chi-square test were not satisfactory the Fisher's exact test was used. Cronbach's Alpha was used to determine reliability.

3.14 Ethical Consideration:

Ethical issues are of great importance in social research as it involves the study of living persons. However, the participant's right to descent treatment should be respected and in particular their right to privacy, their right to confidentiality of personal information, their right to informed consent and their right to the minimization of risks to which people could be exposed in the research process. Anyhow, oral consent was obtained from the research participants. The consent highlighted the following issues: the purpose of the research, confidentiality and participant's right to agree or disagree to.

3.15 Limitations

Collection of more specific demographic data was avoided in response to the participants' right to confidentiality. Some participants were concerned that some information might get to the Israelis. According to the Israeli law, Arab holders of the Israeli identity card (proof of residence) can face expulsion to PA territories if they get hold of evidence that these people living outside Israeli borders. However, for those who agreed to participate in this study, they filled out the questionnaire, which is considered as informal consent.

3.16 Study Variables:

The study investigated both demographic and non-demographic variables.

3.16.1 Demographic Variables:

1. Age was divided into 4 categories: 15-19, 20-29, 30-39 and 40-49 years.

2. Marital status was identified as married, divorced, widowed and separated.
3. Residence locality was classified into 6 categories: inside the old city, southern area, central area, northern area, camp and others.
4. Dwelling property was identified as either owned or rented.
5. Family type was divided into 6 categories, participant, husband only, participant, husband and children, participant and husband and one of his parents, participant and husband and his family members, participant, husband and her family member, others.
6. Educational Level of Participant into 6 categories: primary, elementary, secondary, Diploma, Bachelor degree and Masters of Ph.d.
7. Participant's employment status: employed or unemployed.
8. Participant's employment status after delivery was divided into 4 categories: worked during pregnancy and after delivery; worked during pregnancy but quit work after delivery; (no work during pregnancy, nor after delivery; (no work during pregnancy, and started to work after delivery).
9. Annual family income was classified into 4 main categories as follows: 1500-2500, 2501–3500, 3501–4500 and 4500+ NIS (PCBS, 2007).

3.16.2 Non-demographic Variables:

1. Age at first marriage.
2. Age at first pregnancy.
3. Number of deliveries.
4. Number of children.
5. Participants husband availability: always, at weekends, monthly, and annually.
6. Desire for pregnancy
7. Pregnancy: planned or not planned.
8. Delivery place: home, clinic, hospital or others.
9. Nature of delivery: normal vaginal delivery, C-section, Vacuum or suction, and cut during delivery.
10. Age of last born infant.
11. Gender of last born infant.
12. Single or multiple births.

13. Educational level of participant's husband was classified into 6 categories: primary, elementary, secondary, Diploma, Bachelor degree and Masters of Ph.d.
14. Participant's husband employment status: either employed or unemployed
15. Number of rooms in household.
16. Number of bathrooms in household

Chapter Four

Results and findings

4.1 Introduction:

This chapter represents the results of the analysis in three sections. Section one will assess the prevalence of postpartum depression according to this study. However, section two, will answer the different questions and hypotheses of the study. Finally, the last section will discuss the most significant risk factors of postpartum depression among this study sample.

4.2 Non Demographic Characteristics of the Participants in this Study:

4.2.1 Age at first marriage

Table 4.1: Distribution of participants according to their age at first marriage

Age group	Count	Percent
19 or less	152	55.5
20-24	91	33.2
25-29	26	9.5
30 or above	5	1.8
Total	274	100.0

As shown in Table 4.1 (55.5) percent of the participants age at first marriage was 19 or less, while 33.2% of the was between the age of 20-24, only 1.8% of the participants age at first marriage was above 30 years old.

4.2.2 Age at first pregnancy

Table 4.2: Distribution of participants according to their age at first marriage

Age group	Count	Percent
19 or less	113	41.2
20-24	116	42.3
25-29	34	12.4
30 or above	10	3.7
Missing	1	0.4
Total	274	100.0

Most of the participant's age at first pregnancy was between the year 20 to 24 (42%) while 41.2 % of the participant's age at first pregnancy was 19 or less, only 3.7% over 30 years old.

4.2.3 Number of deliveries

Table 4.3: Distribution of participants according to number of deliveries

Number Deliveries	Count	Percent
1	50	18.2
2	68	24.8
3	52	19.0
4	40	14.6
5	33	12.0
6 or more	29	10.6
Missing	2	0.8
Total	274	100.0

Number of deliveries varied between the participants, but as table 4.3 shows 24.8% of them had 2 deliveries, while 10.6 % had more than 6, and 18.2 had only one delivery.

4.2.4 Number of children

Table 4.4: Distribution of participants according to number of children

Number Children	Count	Percent
1	59	21.5
2	66	24.1
3	54	19.7
4	38	13.9
5	34	12.4
6 or more	22	8.0
Missing	1	0.4
Total	274	100.0

As the above table shows 24.1% of the participants had 2 children, and 21.5% had only one, while around 19.% had 3 and 8.0% had more than 6 children.

4.2.5 Husband Availability

Table 4.5 Distribution of participants according to the husband availability

Availability	Count	Percent
Always	236	86.1
Weekend	27	9.7
Monthly	4	1.5
Yearly	3	1.1
Missing	4	1.6
Total	274	100.0

As table 4.5 shows most of the participant's husbands (86.1%) are always available with the family, while 9.7% of them reported that their spouse is only available in the weekends and 1.1% yearly.

4.2.6 Desire for pregnancy

Table 4.6: Distribution of participants according to their desire of pregnancy

Desired	Count	Percent
Yes	212	77.4
No	60	21.8
Missing	2	0.8
Total	274	100.0

As shown in the above table (77.4%) of the participants had the desire to have a baby, and 21.8% didn't.

4.2.7 Planning for pregnancy

Table 4.7: Distribution of participants according to their planning of pregnancy

Planning	Count	Percent
Yes	157	57.2
No	115	42.0
Missing	2	0.8
Total	274	100.0

Among the participants of the current study (57.2%) of them planned for pregnancy while 42.0% of them didn't.

4.2.8 Place of delivery

Table 4.8: Distribution of participants according to their delivery place

Place	Count	Percent
Clinic	2	.7
Hospital	272	99.3
Total	274	100.0

The majority of the participants had delivered their infants in hospitals (99.3%) while 0.7% of them in clinics.

4.2.9 Nature of delivery

Table 4.9: Distribution of participants according to their nature of delivery

Nature	Count	Percent
Vaginal	184	67.2
C. section	69	25.2
Vacuum	12	4.4
Cut	8	2.9
Missing	1	0.8
Total	274	100.0

Most of the participant's delivery was vaginal (67.2%) while 25.2% of them had C-section and the rest either vacuum or cut.

4.2.10 Age of last born infant (in months)

Table 4.10: Distribution of participants according to their last born infant's age in months

Age	Count	Percent
1-2 months	70	25.5
3-4 months	54	19.7
5-6 months	57	20.8
7-8 months	44	16.1
9-10 months	26	9.5
11-12 months	23	8.4
Total	274	100.0

Twenty five point five percent of the infant's age was 1-2 months while 20.8 % of them were 5-6 months old, and 19.7% were 3-4 months. Anyhow, only 8.4% of them were 11-12 months old.

4.2.11 Gender of last born infant

Table 4.11: Distribution of participants according to their last infant's gender

Gender	Count	Percent
Male	129	47.1
Female	142	51.8
Missing	3	1.1
Total	274	100.0

The female infant's percentage was 51.8 while the males were 47.1%.

4.2.12 Single or multiple births

Table 4.12: Distribution of participants according to single or multiple births (Twins or triplets) of their last infant

Births	Count	Percent
Multiple	2	.7
Single	272	99.3
Total	274	100.0

The majority of the participants had a birth of a single infant while 0.7 had multiple births (twins).

4.2.13 Educational level of participant's husband

Table 4.13: Distribution of participants according to the educational level of the husband

Level	Count	Percent
Primary	73	26.6
Secondary	92	33.6
College or above	108	39.4
Missing	1	0.4
Total	274	100.0

As shown in table 4.13 most of the participants were college educated (39.4%) and 33.6% of them had secondary education, the rest 26.6% had only primary.

4.2.14 Husband employment status

Table 4.14: Distribution of participants according to the husband employment status

Status	Count	Percent
Employed	256	93.4
Unemployed	15	5.5
Missing	3	1.1
Total	274	100.0

As table 4.14 shows the majority of participant's husband 93.4% is employed while the rest were unemployed.

4.2.15 Number of rooms in household

Table 4.15 Distribution of participants according to number of rooms in their household.

Rooms	Count	Percent
1	19	6.9
2	114	41.6
3	134	48.9
4	5	1.8
Missing	2	.7
Total	274	100.0

Most of the participant's household consists of 3 rooms (48.0%), and 41.6% two rooms, only 6.9% had one room.

4.2.16 Number of bathrooms in household

Table 4.16: Distribution of participants according to number of bathrooms in the household

Bathrooms	Count	Percent
1	161	58.8
2	110	40.1
Missing	3	1.1
Total	274	100.0

As table 4.16 shows 58.8 of participant's household had only one bathroom while 40.1 had 2.

4.3 Results of current research questions

Question One: What is the prevalence of postpartum depression among Palestinian women in East Jerusalem?

In order to answer this question, depression was measured adopting the four-item depression sub-scale which was used in a Greek study (Giakoumaki; et al 2009) as shown in Table (4.17)

Table 4.17: Categories of EDPS according to participant's total scores

EPDS Score	Interpretation
0 – 9	Normal
10 – 12	Slightly increased risk; Mild depressive symptoms
13 – 16	Increased risk, Moderate depressive symptoms
>= 17	Likely depression; severe depressive symptoms

Descriptive statistics of Edinburgh Postnatal Depression Scale are presented in Table (4.18) see Appendice (4.1)

Table 4.18: Counts and Percentages of Edinburgh Postnatal Depression Scale scores

Risk of Postpartum Depression	Frequency	Valid Percent
Normal	63	23.0
Mild depressive	60	21.9
Moderate depressive	81	29.6
Severe depressive	70	25.5
Total	274	100.0

As shown in Table (4.18) above, 63 of the participants (23%) had an EPDS score of 9 or below (normal, not depressed), 60 (21.9%) had a score between 10 and 12 (slightly increased risk, mild depressive symptoms), 81 (29.6%) had a score between 13 and 16 (increased risk; moderate depressive symptoms), and 70 (25.5%) had a score of 17-30 (depressed).

4.4 Prevalence of Postpartum Depression and Demographic Variables:

Descriptive statistics were used to examine the demographic characteristics of the sample, the overall prevalence of postpartum depression, and the prevalence of depressed mood by each demographic characteristic as follows:

4.4.1. Age of the participants:

Table 4.19: Distribution of EPDS Scale scores according to Age Groups

Age Group	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
15-19	Count	7	3	6	4	20
	% of Total	2.6	1.1	2.2	1.5	7.3
20-29	Count	31	40	46	43	160
	% of Total	11.3	14.6	16.8	15.7	58.4
30-39	Count	23	17	27	16	83
	% of Total	8.4	6.2	9.9	5.8	30.3
40-49	Count	2	0	2	7	11
	% of Total	.7	.0	.7	2.6	4.0
Total	Count	63	60	81	70	274
	% of Total	23.0	21.9	29.6	25.5	100.0

According to table (4.19) the highest percentage of severely depressed participants was among those whose age was between (20-29) years old (15.7%). The same group showed the highest percentage of moderate (16.8%). On the other hand, the least severely depressed participants were aged (15-19) years (1.5%) while the lowest moderately depressed was among the age group (40-49).

4.4.2 Marital status

Table 4.20: Distribution of EPDS Scale scores according to Participant's Martial Status

Marital Status	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
Married	Count	61	58	78	62	259
	% of Total	22.26%	21.17%	28.47%	22.63%	94.53%
Previously married	Count		1	3	6	10
	% of Total	0.00%	0.36%	1.09%	2.19%	3.65%
Missing Value	Count	2	0	2	1	5
	% of Total	0.73%	0.00%	0.73%	0.36%	1.82%
Total	Count	63	59	83	69	274
	% of Total	22.99%	21.53%	30.29%	25.18%	100.00%

At the time of recruitment, 94.53% of the participants were married; 5 were missing while the others were previously married (3.65%). Since the number of previously married participants is small, comparisons with married participants are not made. Among those who were married, 23% had severe depression and 29% had a moderate level of postpartum depression.

Note: for statistical purposes the categories of marital status had been edited to married, and previously married.

4.4.3. Residence locality

Table 4.21: Distribution of EPDS scores according to participant's residence locality

Residence locality	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
Inside the old city	Count	4	4	6	4	18
	% of Total	1.5	1.5	2.2	1.5	6.6
Southern area of Jerusalem	Count	22	26	16	22	86
	% of Total	8.0	9.5	5.8	8.0	31.4
Central area of Jerusalem	Count	11	6	14	8	39
	% of Total	4.0	2.2	5.1	2.9	14.2
Northern area of Jerusalem	Count	24	19	37	28	108
	% of Total	8.8	6.9	13.5	10.2	39.4
Camp	Count	2	5	8	8	23
	% of Total	.7	1.8	2.9	2.9	8.4
Total	Count	63	60	81	70	274
	% of Total	23.0	21.9	29.6	25.5	100.0

The more likely to be severely depressed in the study sample were participants living in the northern area of Jerusalem (10.2%), while the least severely depressed were those living inside the old city (1.5%). For the moderately depressed, the highest rate was also among participants living also in the northern area while the least depressed were also among those living inside the old city.

4.4.4. Dwelling property

Table 4.22: Distribution of EPDS scores according to participant's dwelling property

Dwelling Property	EPDS Scale					Total
	Statistics	Normal	Mild depressive	Moderate depressive	Severe depressive	
Owned	Count	30	28	32	29	119
	% of Total	10.9	10.2	11.7	10.6	43.4
Rented	Count	33	32	49	41	155
	% of Total	12.0	11.7	17.9	15.0	56.6
Total	Count	63	60	81	70	274
	% of Total	23.0	21.9	29.6	25.5	100.0

As Table (4.22) shows, the severely and moderately depressed participants among the sample were living in rented houses (15.0%) and (17.9%) respectively.

4.4.5. Family type:

Table 4.23: Distribution of EPDS Scale scores according to participant's family type

Family Type	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
Nuclear	Count	60	50	74	58	242
	% of Total	21.9	18.2	27.0	21.2	88.3
Extended	Count	3	10	7	12	32
	% of Total	1.1	3.6	2.6	4.4	11.7
Total	Count	63	60	81	70	274
	% of Total	23.0	21.9	29.6	25.5	100.0

According to table 4.23 participants living in nuclear families were severely depressed (21.2%) compared to 4.4% of those living with an extended family. It can be noticed that the same pattern was observed with the moderately depressed participants. Those who live in nuclear families have a higher rate of postpartum depression (27.0%) than those who live within an extended family.

Note: for statistical purposes the categories of family type had been edited to nuclear, and extended.

4.4.6. Educational level of participants

Table 4.24: Distribution of EPDS scores according to participant's educational level

Educational level	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
Primary	Count	8	10	28	28	74
	% of Total	2.92	3.65	10.22	10.22	27.01%
Secondary	Count	18	25	24	19	86
	% of Total	6.60	9.10	8.80	6.90	31.40%
College / University	Count	37	25	29	23	114
	% of Total	13.50	9.12	10.58	8.39	41.61%
Total	Count	63	60	81	70	274
	% of Total	23.0%	21.9%	29.6%	25.5%	100.0%

Participants who had only primary education had the highest rate of severe depression (10.22%), while the highest level of moderately depressed was for those who had college/university education (10.58%). However, the lowest rate of severe depression was for those who had secondary education as well as the moderately depressed with a rate of

(8.80%).

Note: for statistical purposes the categories of participant's educational level had been edited to primary, secondary and college/university.

4.4.7. Labor force Status of the Participant

Table 4.25: Distribution of EPDS scores according to participant's labor status

Labor force status	EPDS Scale					Total
	Statistics	Normal	Mild depressive	Moderate depressive	Severe depressive	
Employed	Count	11	15	20	10	56
	% of Total	4.0	5.5	7.4	3.7	20.6
Unemployed	Count	51	45	61	59	216
	% of Total	18.8	16.5	22.4	21.7	79.4
Total	Count	62	60	81	69	272
	% of Total	22.8	22.1	29.8	25.4	100.0

Only 3.7% of the participants who work reported having severe depression; on the other hand (21.7%) of the severely depressed participants didn't work, and were housewives.

4.4.8. Participants labor status after delivery

Table 4.26: Distribution of EPDS scores according to participant's labor status after delivery

Participant's labor status after delivery	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
worked during pregnancy and back after delivery	Count	10	15	10	7	42
	% of Total	3.9	5.8	3.9	2.7	16.3
worked during pregnancy and stopped after delivery	Count	8	1		5	14
	% of Total	3.1	.4		1.9	5.4
didn't work during pregnancy or after delivery	Count	37	41	66	55	199
	% of Total	14.4	16.0	25.7	21.4	77.4
didn't work during pregnancy and worked after delivery	Count	1		1		2
	% of Total	.4		.4		.8
Total	Count	56	57	77	67	257
	% of Total	21.8	22.2	30.0	26.1	100.0

It can be noticed that participants who didn't work during pregnancy or after delivery had high percentage of severe postpartum depression with a rate of 21.4% while 25.7% had moderate level of depression. Participants who didn't work during pregnancy and worked after delivery didn't develop severe postpartum depression.

4.4.9. Participant's family income:

Table 4.27: Distribution of EPDS scores according to family income

Family Income	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
1500-2500	Count	6	3	8	10	27
	% of Total	2.2	1.1	3.0	3.7	10.0
2501-3500	Count	8	10	22	15	55
	% of Total	3.0	3.7	8.1	5.6	20.4
3501-4500	Count	26	30	36	29	121
	% of Total	9.6	11.1	13.3	10.7	44.8
more than 4500	Count	23	17	14	13	67
	% of Total	8.5	6.3	5.2	4.8	24.8
Total	Count	63	60	80	67	270
	% of Total	23.3	22.2	29.6	24.8	100.0

As shown in the above table most of the participants monthly income is in the rank (3501-4500), 10.7% of them were severely depressed, while only 27 of the participant's monthly income was between 1500-2500, and only 3.7% severed depression, this due to that the majority of the families income is ranked between 3500 and above.

4.5 Hypotheses testing results:

The first hypothesis of the current study which was: There is no significant difference in the prevalence of PPD among Palestinian women in East Jerusalem at 0.05 level of significance). This hypothesis was derived from the second and third questions of the study. However, in order to answer thesis questions a correlation analysis was carried out to investigate the relationship between postpartum depression scale and the different study variables to test if they are likely to relate to the demographic and non demographic factors.

The results of testing this hypothesis are illustured as follows:

Table 4.28: Correlation coefficients between EPDS and study factors

Variable	EPDS Scale			
	Correlation coefficient	Type	Significance.	N
Age	-0.407	Pearson	0.041	274
Age at first marriage	-0.605	Pearson	0.001	274
Age at first pregnancy	-0.569	Pearson	0.005	273
Residence locality	0.501	Spearman	0.039	274
Dwelling property	0.463	Spearman	0.041	274
No. of rooms	-0.448	Pearson	0.027	272
No. of bathrooms	-0.414	Pearson	0.014	271
No. of household members	0.541	Pearson	0.02	272
Participants educational level	-0.644	Spearman	.000	274
Participants husband educational level	-0.627	Spearman	.000	273
Participants husband labor force status	0.531	Spearman	0.041	271
Participants labor force status	0.455	Spearman	0.049	272
Woman's labor status after delivery	0.573	Spearman	0.009	257
Monthly family income	-0.581	Pearson	0.003	270
No. of children	0.47	Pearson	0.021	273
No. of deliveries	0.481	Pearson	0.045	272
Desire for pregnancy	0.538	Spearman	0.028	272
Planning for pregnancy	0.407	Spearman	0.030	272
Nature of delivery	0.043	Spearman	0.420	273
Age of last child in months	0.047	Pearson	0.254	274
Sex of last child	-0.074	Spearman	0.483	271
EPDS Scores	0.942	Pearson	.000	274
EPDS Scale	1	Pearson	.000	274

4.5.1 Associated demographic variables:

In order to answer question two of this study, we have to answer the sub hypothesis derived from the first main hypothesis of the current study as follows:

Sub hypothesis one: Age

There is no significant difference in the prevalence of PPD among Palestinian women in East Jerusalem at 0.05 level of significance and the demographic variable (current age of the participant). However, the results indicate that there is a negative correlation between age and the PPD according to Pearson's correlation (-0.407) with sig. value less than 0.05 (0.041); that is, when the variable level increases, the depression scale decreases and the higher PPD would be among the lowest age category rank.

Sub hypothesis two: Residence locality

There is a positive correlation between the prevalence of PPD and the participant's residence locality at the 0.05 level of significance, the spearman's correlation is (0.501) and the sig. value is (0.039). This means that by increasing the variable "residence locality" the women who live "in the old city of Jerusalem have higher EPDS score than those who live "inside the old city," category rank 1.

Sub hypothesis three: Dwelling property

There is a positive correlation between the prevalence of PPD and the study variables at the 0.05 level of significance, spearman's correlation is (0.463) while the sig. value is (0.041). This indicates that the higher prevalence of PPD is expected to be among participants who live in rented houses, (it's category rank is 2).

Sub hypothesis four: Participant's educational level

There is a negative correlation between the prevalence of PPD and the participants' educational level variable at the 0.05 level of significance, spearman's correlation is

(0.644) while the sig. value is 0.000, which means the higher the participant's education (rank 3), the less likely she is to be depressed according to the EPDS scale scores.

Sub hypothesis five: Participant's labor force status

There is a negative correlation between the prevalence of PPD and whether a participant is employed or unemployed. Spearman's correlation is (0.455), and the sig. value is (0.049). This indicates that participants who work (rank 2) are less likely to be depressed compared to non-working participants.

Sub hypothesis six: Family income

There is a negative correlation between the prevalence of PPD and the participant's family income variable at the 0.05 level of significant, the Pearson's correlation of this variable = (0.581) and the sig value is (0.003). That means that the lower the family income (rank 1), the more likely the participant to be depressed.

4.5.2. Question number two and its answer:

According to study question two which is: " Is there an association between the prevalence of postpartum depression and the different demographic variables in this study at 0.05 level of significant?" The answer was that there had been an association between 6 demographic variables and the prevalence rate of PPD. Those variables were the current age of the participant, the resident locality, dwelling property, participant's educational level, participant's labor force and the family income of the participant.

4.5.3 Associated non demographic variables

In order to answer question three of this study several sub hypothesis were derived from the first main hypothesis of the current study concerning the non demographic variables as follows:

According to table (4.14) the non demographic variables associated with the prevalence of PPD were as follows:

Sub hypothesis one: Age at first marriage

There is a negative correlation between the prevalence of PPD and age at the first marriage at the 0.05 level of significance. Pearson's correlation is (0.605) and the sig. value is (0.001); this means that the younger the participant is, the more likely she is to develop PPD.

Sub hypothesis two: Age at first pregnancy

There is a negative correlation between the prevalence of PPD and age at first pregnancy at the 0.05 level of significance. Pearson's correlation is (0.569) and the sig. value is (0.005). This result indicates that the younger the participant is at the first pregnancy, the greater the risk of having PPD.

Sub hypothesis three: Number of rooms

There is a negative correlation between the prevalence of PPD and number of rooms in the participant's household. Pearson's correlation is (0.448) and sig. value is (0.027), which indicates that the fewer the rooms in the participant's residence, the higher the likelihood of the occurrence of PPD.

Sub hypothesis four: Number of bathrooms

There is a negative correlation between the prevalence of PPD and the number of bathrooms in the participant's residence. Pearson's correlation is (0.414) and sig. value is (0.014), which indicates that the fewer the bathrooms in the participant's residence, the more likely the participant to have PPD.

Sub hypothesis five: Number of household members

There is a positive correlation between the prevalence of PPD and the number of household members. Pearson's correlation is (0.541) and sig. value is (0.02). This indicates

that the higher the number of family members in the participant's residence, the greater likelihood of PPD.

Sub hypothesis six: Number of children

There is a positive correlation between the prevalence of PPD and number of children. Pearson's correlation is (0.47) and the sig. value is (0.021); this shows that the more children the participant has, the more likely she is to develop PPD.

Sub hypothesis seven: Number of deliveries

There is a positive correlation between the prevalence of PPD and the number of deliveries as follows: Pearson's correlation = (481) and the sig. value = (0.045); that is the more deliveries the participant has had, the more likely it is for the participant to develop PPD.

Sub hypothesis eight: Participants husband educational level

There is a negative correlation between the prevalence of PPD and the husband's educational level: spearman's correlation = (0.627) and the sig. value = (.000); that is the higher the educational level of participant's husband, the least likely the woman is to develop PPD.

Sub hypothesis nine: Labor force status of participant's husband

There is a positive correlation between the prevalence of PPD and the labor force status of the participant's husband at the 0.05 level of significance, spearman's correlation = (0.530) and the sig. value = (0.032). This means that a woman whose husband is unemployed is more likely to have PPD.

Sub hypothesis ten: Desire for pregnancy

There is a positive correlation between the prevalence of PPD and the desire for pregnancy at the 0.05 level of significance: spearman's correlation = (0530) and the sig. value = (0.032). This result indicates that the higher the participant's desire for pregnancy (rank 2),

the more likely she is to develop PPD.

Sub hypothesis eleven: Planning for pregnancy

There is a positive correlation between the prevalence of PPD and this study variable at the 0.05 level of significance: spearman's correlation = (0.538) and the sig. value = (0.028), which indicates that the prevalence of PPD increases when participants answer is (No) as rank 2 of this question.

4.5.4 Question number four and its answer

The question was: Is there any association between the prevalence of postpartum depression and the other variables in this study at 0.05 level of significant? the results shows that there was an association between some non demographic variables and the prevalence of PPD among the participants as follows: age at first marriage, age at first pregnancy, number of rooms, number of bathrooms, number of household members, number of children, number of deliveries, participants husband educational level, labor force status of participant's husband, desire for pregnancy and planning for pregnancy.

4.5.5 Non associated variables:

As the answers of questions two and three above shows that there were an association between some of the demographic as well as some other non demographic variables and the prevalence of PPD among the participants in this study. Thus the first hypothesis of the study was not right.

On the other hand, the nature of delivery, age of last child in months, sex of child, and single vs. multiple births are all not significant correlates with EPDS scale, with Pearson's Correlation coefficients all close to zero, and sig. values greater than (0.05); therefore, these variables will be excluded from the analysis. The results in Table (4.14) also indicate that in general the study variables are significantly correlated with EPDS Scale (Kendall's W = .729) with sig. value less than 0.05.

4.6 Hypothesis Two

There is no correlation between the prevalence of PPD and the study demographic variables at the 0.05 level of significance.

In order to test for significant difference in EPDS Scale, the chi-square test was conducted. The Chi square test is usually used with the categorical variables. The results are shown in the Table 4. 29 below.

Table 4.29 : Chi-Square Tests

Variable	EPDS Scale		
	Chi-Square	Df	Sig. (2-sided)
Residence locality	5.571	4	0.037
Dwelling property	6.426	1	0.023
Educational level of participant	18.195	5	0.003
Educational level of participants husband	17.447	5	0.004
Labor force status of participants husband	4.093	1	0.043
Labor force status of participant	3.105	3	0.049
Labor status after delivery	10.186	3	.017
Availability of participants husband	3.105	3	.376
Desire for pregnancy	4.609	1	.032
Planning for pregnancy	4.192	1	0.034
Occupation of wife	3.410[a]	3	.333
Nature of delivery	2.829[a]	3	.419
Sex of child	1.566	1	.211

The results in Table (4.29) are the same as was done previously using Pearson's correlation. However, the results in Table (4.29) also show that there is a relationship between the EPDS scale and the following demographic variables:

a) Residence Locality with p value (0.037)
b) Educational level of participants with p value (0.003)
c) Dwelling property with p value (0.023)
d) Participants labor force with p value (0.049)
e) Participant labor force after delivery with p value (0.017)

On the other hand the non demographic variables correlated to the prevalence of PPD, were the following:

a) Participants husbands educational level with p value (0.004)
b) Participants husband labor force status with p value (0.043)
c) Desire for pregnancy with p value (0.032)
d) Planning for pregnancy with p value (0.034)

These results clearly indicate that these variables were not accidental.

4.7 Question Four:

What are the significant risk factors on postpartum depression according to this study?

To answer this question, the ANOVA for Multilinear regression was used. The statistic procedure used after the non significant coefficients were excluded from the model, and only the significant coefficients were included in the model. The new results of the analysis were as follows:

Table 4.30: ANOVA For Multilinear regression

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1123.181	13	86.399	3.592	.000[a]
Residual	5917.803	246	24.056		
Total	7040.985	259			

The results in Table (4.30) show the ANOVA table which tests the acceptability of the model from a statistical perspective. The significance value of the F statistic is less than 0.05, which means that the model fits the data in a perfect way and it can also be considered as an excellent predictor of the dependent variable (EPDS scores) from the independent variables.

Table 4.31: Coefficients of regression model

Model Variables	Coefficients (B)	STD Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	9.876	3.030		3.260	.005
Age at first pregnancy	.266	.236	.203	1.126	0.002
Age at first marriage	-.359	.255	-.250	-1.408	0.005
Residence locality	.636	.280	.138	2.269	0.017
No. of household members	.583	.274	.203	2.126	0.019
Educational level of husband	-.414	.306	-.102	-1.353	0.021
Educational level wife	-.485	.351	-.121	-1.382	0.023
Family income	-.081	.387	-.014	-.210	0.031
Dwelling property	.226	.628	.022	.360	0.034
Age	.302	.657	.039	.459	0.039
No. of deliveries	1.807	.775	.593	2.330	0.04
No. of children	-2.405	.848	-.767	-2.838	0.042
Desire for pregnancy	1.310	.813	.103	1.610	0.044
Labor force status of husband	1.868	1.476	.081	1.266	0.045

The results in Table (4.31) show all the significant coefficients in the model; all of these variables contribute to the model. In order to determine the relative importance of the significant predictors, look at the standardized coefficients (Beta), a predictor with the largest absolute standardized coefficient contributes more to the model. Thus, predictors were arranged according to importance as follows:

- The predictor "number of children" contributes more to the model than others because it has a larger absolute standardized coefficient (0.767); that Coefficients (B) of this predictor are negative, which indicates that there is an indirect

relationship between this predictor and the dependent variable. In other words, a one-unit decrease in "number of children" would yield a 2.405 unit increase in the predicted EPDS scores.

- The predictor "number of deliveries" has the second larger absolute standardized coefficient (0.593), the Coefficients (B) of this predictor are positive and this indicates that there is a direct relationship between this predictor and the dependent variable. That is, a one-unit increase in "number of deliveries" would yield a 1.807 unit increase in the predicted EPDS scores.

- The predictor "age at first marriage" has the third larger absolute standardized coefficient (0.250); the Coefficients (B) of this predictor are negative and this indicates that there is an indirect relationship between this predictor and the dependent variable. A one-unit decrease in "age at first marriage" would yield a 0.359 unit increase in the predicted EPDS scores.

- The predictors "age at first pregnancy" and "number of household members" have the same absolute standardized coefficients (0.203). The Coefficients (B) of these predictors are positive, which indicates that there is a direct relationship between these predictors and the dependent variable. This means that a one-unit increase in "age at first pregnancy" would yield a 0.266 unit increase in the predicted EPDS scores, and a one-unit increase in "number of household members " would yield a 0.583 unit increase in the predicted EPDS scores.
- The predictor "residence locality" has an absolute standardized coefficient of (0.138). The Coefficients (B) of this predictor are positive and this indicates that there is a direct relationship between this predictor and the dependent variable. This means that a one-unit increase in "residence locality" would yield a 0.636 unit increase in the predicted (EPDS scores).

- The predictor "participant's educational level" has absolute standardized coefficient of (0.121); the Coefficients (B) of this predictor are negative and this indicates that there is an indirect relationship between this predictor and the dependent variable.

This means that a one-unit decrease in "participant's educational level" would yield a 0.485 unit increase in the predicted EPDS scores.

- The predictor "desire for pregnancy" has an absolute standardized coefficient of (0.103); the Coefficients (B) of this predictor are positive. This indicates that there is a direct relationship between this predictor and the dependent variable. In other words, a one-unit increase in "desire for pregnancy" would yield a 1.310 unit increase in the predicted EPDS scores.

- The predictor " participant's husband educational level" has an absolute standardized coefficient of (0.102); the Coefficients (B) of this predictor are negative and this indicates that there is an indirect relationship between this predictor and the dependent variable. That is a one-unit decrease in "educational level of participant's husband" would yield a 0.414 unit increase in the predicted (EPDS scores).

- The predictor "participant's labor force status" has an absolute standardized coefficient of (0.081), the Coefficients (B) of this predictor are positive and this indicates that there is a direct relationship between this predictor and the dependent variable. That is a one-unit increase in "participant's labor force status" would yield a 1.868 unit increase in the predicted (EPDS scores).

- The predictor "age" has an absolute standardized coefficient of (0.039), the Coefficients (B) of this predictor are positive and this indicates that there is a direct relationship between this predictor and the dependent variable. That is a one-unit increase in "age" would yield a 0.302 unit increase in the predicted EDPS scores.

- The predictor "dwelling property" has an absolute standardized coefficient of (0.022), the Coefficients (B) of this predictor is positive, which indicates that there is a direct relationship between this predictor and the dependent variable. In other words, a one-unit increase in "dwelling property" would yield a 0.226 unit increase in the predicted EPDS scores.

- The predictor "family income" has an absolute standardized coefficient of (0.014), the Coefficients (B) of this predictor is negative and this indicates that there is indirect relationship between this predictor and the dependent variable. That is, a one-unit decrease in "family income" would yield a 0.081 unit increase in the predicted EPDS scores.

Note: For the qualitative variables, like this predictor, one unit decrease or increase means an increase or decrease in the level of the variable.

4.8 Summary:

The results of the study were presented in this chapter; these results will be discussed and interpreted in the next chapter.

Chapter Five

Discussion and Recommendation

5.1 Introduction:

In this chapter the major findings of the current study were discussed in light of the relevant cultural, demographic and socioeconomic factors, and the findings will also be compared with the results of previous studies on PPD using EPDS or measuring tool. The recommendations and conclusion of the researcher were then added according to the results and discussion of the study.

5.2 Discussion of Research Question One

What is the prevalence of postpartum depression among Palestinian women in East Jerusalem?

The main finding of the present study indicates that the overall prevalence of PPD (both moderate and severe) among Palestinian woman in East Jerusalem was (55.11%) using the EPDS measuring tool. However, higher prevalence rates were found in two other studies on Palestinian women the first one done by (Abdallah, 2007) found a prevalence of (65.3%) using the BDI tool, while the second one done by (Sammour, 2002) found a PPD prevalence of (69%) among Palestinian women in Gaza Strip using the EPDS.

On the other hand, the findings of studies in different Arab countries were lower than those found among Palestinian women. Alami et al., (2006) found that the prevalence of PPD among Moroccan women was (17%). While, in Jordan the prevalence of PPD was (22%) according to Muhammad et al., (2010). Chaaya et al. (2007) studied PPD prevalence in Lebanon and found slightly different percentages of (21%) for Beirut and (26%) for the Beqa' Valley. However, the findings of PPD prevalence in the city of Dubai was (18%) using EPDS and (22%) using the SRQ (Abou-Saleh, et al., 1987).

In contrast to the PPD prevalence's found in the Arab countries, the prevalence of PPD in the industrialized countries was 10-15% (Halbreich, 2002**)**. This shows that the prevalence of PPD in Arab countries is over four times as much as in the industrialized countries. Studies of PPD prevalence in women in non Arab developing countries also show higher prevalence rates than in Western countries (Bugdayci el al., 2004).

The prevalence of PPD among Palestinian women seems to be the highest, even among other Arab women. This major finding could be attributed to the fact that Palestinian women live under occupation. In such conditions life stressors are likely to be much more than in other residence localities. In particular, women in Jerusalem live within the Israeli separation wall, therefore, restrictions on travel make the movement of Palestinians in general quite frustrating, and stressful. According to Giacaman (2004) the Israeli military check points and closures as well as the low socioeconomic status contribute to an increase psychological pressure on women. The Israeli wall separates relatives, family members, friends from one another and interrupts a lot of social functions, most importantly social support. Consequently, the psychological pressure is ever increasing.

Another reason for the high prevalence of PPD among Palestinian women might be related to the increased focus on the physical well being of the mother and newborn, to the exclusion of the psychological well being of the mother, which is rarely considered. It is commonly believed that medical care for the child is more necessary. The high incidence of PPD among Palestinian might be related to women's perception of their primary role as caretakers, which is much more likely to understate their needs in order to meet those of their children (PCBS, 2007). In addition, this high prevalence may have several reasons. Obstetric clinicians ignore depression or other psychiatric illness during pregnancy. On the

other hand women often are hesitant to ask for help because of the shame, cultural expectation or misbelieve that their feelings are normal reaction to this new condition (Mancini, et al., 2007).

The variation in the prevalence of PPD in regional or global studies could be closely related to the measuring instrument used in the various studies. Although the most popular measuring instrument for PPD is EPDS, other tools are equally available for researchers. For example, Abou-Saleh et al., (1997) used two different tools in the same study and obtained different PPD prevalence rates. Using EPDS for his study among women in Dubai Hospital the result was 18%, in contrast, SRQ yielded a higher prevalence rate of 22%.

However, EPDS is a screening instrument and high scores on it do not in themselves confirm depressive illness. Nevertheless, evaluation of EPDS has shown that it provides a valid measurement of affective morbidity and it has previously been used alone in assessing maternal mood (Hannah et al., 1992), (Warner et al., 1996).

In addition to the variation in measurement tool, the sample size may also play a role in the results of the prevalence of PPD. A further factor affecting the results of PPD prevalence is the time of postpartum when the data is gathered. Wickberg (1997) found that PPD scores in Swedish women were higher at 8 weeks than at 12 weeks (12.5% and 8.3% respectively). An Australian study showed that PPD scores dropped over time from one month (11.3%) to three months (9.4%) and six months (5.4%) (Boyce et al., 1993). Similarly, Najman et al., (2000) stated that the prevalence of depression during pregnancy at six months postpartum is less than during any other postnatal period.

On the other hand, studies conducted in Turkey reported that depression scores increased with the age of the baby (they tested between 0-15 months) and hypothesized that this may be related to the fact that mothers receive a great deal of interest and support immediately following the birth but that this drops off over time (Budayci et al., (2004); Danaci et al., 2002).

The variability in reported PPD prevalence could also be contributed to cross-cultural variables, reporting style, differences in perception of mental health and the stigma

associated with it, differences in socio-economic conditions (e.g. poverty, level and perception of social support, nutrition, stress), and factors of biological vulnerability.

5.3 Discussion of the demographic variables affecting the prevalence of PPD:

In the present study, nine different demographic variables were investigated as possible factors affecting the prevalence of PPD among Palestinian women living in East Jerusalem. The following section presents a discussion of the results presented in the previous chapter.

5.3.1 Age:

The highest prevalence of PPD was found among participants in the (20-29) age group with moderate depression at (16.8%) and severe depression at (15.7%). This finding could be directly related to the number of participants in this age group (160), which represents 58.4% of the sample in this study. In the Palestinian society, most women living in cities get married in their late teens or early twenties according to the Palestinian Central Bureau of Statistics (PCBS, 2007), the mean age for women at the first marriage stands at 18 years old. This means that approximately 50% of women get married before they turn 18. However, in the current study most of the sample participants fell in the age group (20-29). This may account for the higher prevalence of PPD among this group.

This age range comprises a rather challenging stage in the married life of a young woman. The sudden change in the young woman's social role and the new social responsibilities and functions she is made to assume, pregnancy and motherhood all are likely to present psychological stressors to the young woman. Therefore, it might be safe to claim that the high degree of prevalence of postpartum depression among women in the age group (20-29) is not quite surprising.

5.3.2 Marital status:

Almost all of the participants in the study are married (259). In the Palestinian society, pregnancies out of wedlock are totally unacceptable and are likely to end in abortion or

marriage of the couple before delivery. If brought to term, babies born out of wedlock relations are unlikely to receive health care at MCHC clinics. The rest of the sample of the study were previously married, either widowed, separated or divorced, anyhow the number of those participant was slightly small compared to the whole sample size.

5.3.3 Residence locality:

Although the study investigated PPD prevalence in women living in East Jerusalem, it was thought that the various locality within Jerusalem proper can have a bearing on the incidence of PPD. So four localities were identified: the northern part of the city, the southern part, inside the old city and central part (including the only refugee camp in East Jerusalem). The findings show women living in the northern part of the city had a higher rate of PPD than that among women in the other localities. It is important to note that one third of the participants in this study were from the northern part of Jerusalem (108). This fact can undoubtedly account for this finding.

5.3.4 Dwelling property:

Approximately, half of the participants (155) didn't own their houses but lived in rented residences. The prevalence of severe PPD among them was (15.0%), while the moderate was (10.6%) This finding may not be surprising in view of the fact the Israeli authorities rarely grant building permits in East Jerusalem areas. With the trend towards nuclear families, newly married couples find themselves forced to live in rented houses or apartments. In general, rents in Jerusalem are quite high in contrast with rents in other Palestinian cities. High house rent payments can and often consume most of the family income, and thus affect the financial status of the whole family, most particularly in single-income households. The study findings indicate that the majority of the participants were housewives, so the husband would be the main source of financial support, therefore, participants whose living in rented houses with limited financial support, are more likely to develop PPD. In addition, in Jerusalem, residents of the city are obliged to pay taxis for the municipality of Jerusalem for their houses even if they were rented (Arnona Tax), this would even consume more of their monthly income. However, this fact can be a great

stressor to women and men alike. Lower income households are extremely vulnerable (Moraes et al., 2006).

5.3.5 Family type:

The majority of the participants live in nuclear families, that is, families consisting of the husband, wife and their children living together in the same house. The higher rate of depression among this group was 21.2% compared to 4.4% women living within extended family. This may due to two reasons the first reason is that the majority of the participants are among this group so it would be logical to have a higher rate of PPD compared to other participants living in extended families. The second reason is that the lack of social support of the participant's parents, particularly the mother, may lead to more stressors to the participant and makes her more vulnerable to depression. In many respects, social life in the Palestinian cities is becoming increasingly individualistic and households are increasingly becoming nuclear than extended (Sabella, 1983).

This situation weakens the social support for the participants; these women typically do not receive adequate support and are left to cope with tribulations of the postpartum period on their own (Taraki, 2006).

5.3.6 Educational level:

The less educated participants in this study were more likely to be severely depressed (10.22%). This may be due to the lack of adequate knowledge and experience in dealing with the infant. In turn, this may affect the mother's self-esteem as a mother and shed doubt on her ability to be a good mother or not, which may put even more pressure on her, according to high expectation. On the other hand, the incidence of moderate depression among the highly educated participants in the study was high (10.58). This finding may also be due to the high expectations of the surrounding social environment of the participant in her role of being a mother. This puts her under a lot of pressure, which may ultimately lead to PPD. This agrees with Khamis, (1998) who concluded that Palestinian women with low incomes and less education were more psychologically distressed and had worse mental well being.

5.3.7 Labor force status:

The majority of the participants were unemployed housewives (79.4%); only (20.6%) were employed. Among the employed only (3.7%) were severely depressed and (7.4%) were moderately depressed. In contrast, unemployed housewife participants showed much higher rates of depression. Anyhow, this could be claimed that working mothers have more time for themselves and their careers, and have their own space, away from the routine responsibilities of mother and housewife. Although working outside the house may be expected to exert some pressure on working mothers for neglecting their house duties or for feeling guilty for leaving their infants at home. However, working mothers in this study have shown lower prevalence of PPD compared to housewives. It is also quite that financial independence of working mothers could also be claimed to give a greater sense of security and hence a lower possibility of getting depression.

5.3.8 Labor force after delivery:

Around two thirds of the participants (199) didn't work during pregnancy or after delivery. Yet, the prevalence of PPD among this category was the highest among all other group with (21.4%) severe depression and (25.7%) moderate depression. As pointed out earlier, the large size of this group of participants in the sample could account for this result. Other reasons are equally possible. For example, the routine life of those participants, their financially dependence on their spouses are quite likely to be strong sources of depression. According to Manasra, (2003), unemployed women stay home most of the time, have no purpose or goal in life; and feel useless and powerless. To avoid depression, it is important to be employed and financially independent. A respectable job that provides higher wages and social status, especially for women who work to support themselves, can be a source security and lack of anxiety and stress. However, according to (Kayyal, 1993), work ensures independence and financial security; yet at the same time, it exhausts them and exposes the women to unfavorable social anxiety. Educated and employed women are likely to have ambivalent and contradictory attitudes towards work.

5.3.9 Family income:

About (44.8%) of the participants' family income was in the category (3501-4500 NIS). The prevalence of PPD among this group was higher compared to other categories. Again, this finding might be a factor of the size of the group because it comprises half of the participants in the study sample. However, more frequency doesn't indicate any statistical significance.

5.4 Discussions of EPDS scale results in relation to the study variables

The findings of the study show that the most significant independent variables in relation to EPDS are as follows:

5.4.1 Age:

The most related independent variable according to EPDS frequencies and percentages is the age category (20-29) with a mean of 13.29 and STD (4.911).

5.4.2 Number of household members:

The second related variable is the number of household members; the results of the present study show that the bigger the family, the more likely are the participant to be depressed, mean (16.44) and STD (7.780). A large number of family members have a negative impact on the socioeconomic status of the family as a whole. The quality of life among postpartum women was positively associated with better socioeconomic status. This is in agreement with the several studies in the literature which indicate that low socioeconomic status is related to the health status wellbeing and life satisfaction, thus women in such socioeconomic status are more likely to develop PPD compared to others in better conditions as Pinquart & Sorensen (2000) reported, as well as the findings of (Beck, 2001; Cox et al., 1993; Eberhard et al., 2002; Lee, et al., 2000; and Mananzo et al., 2002).

5.4.3 Educational level of participant:

The educational level of participants was found to be related to the PPD prevalence; the less educated the participant is, the more likely she is to be depressed. Participants with primary educated had the highest mean (14.72) and STD (3.624). Well educated women are independent and financially able to support themselves despite the socioeconomic status of their families. In this regard, Manasra (2003) suggested that being well-educated and financially independent increases a woman's self-confidence. Similarly, Punamaki, (1988); Khamis, (1998) and Sansur, (1995) connected mental well-being of women with education, social support, independent living and high adaptability.

5.4.4 Educational level of participant's husband:

The educational level of the husband was found to be related to the prevalence of PPD; the more educated the husband, the less the participant is likely to be depressed. Participants whose husbands had Primary education scored a mean of (15.12) and STD of (5.373). This finding could be attributed to the support and understanding that educated husbands have of the new role of their wives which may relieve the wives from stressors and therefore develop lower PPD rates than other participants. In addition, better educated husbands seem to have better labor status, and consequently a higher family income, which in turn may provide more security.

5.4.5 Family income:

Family income was been found to be associated with the prevalence of PPD among the study participants. For participants in the lowest income category (1500-2800 NIS), the mean was (14.59) and the STD was (6.588) of participants whose income is.

5.4.6 Desire for pregnancy:

The mean for unwanted pregnancy was (2.92) and the STD was (1.078). Pregnancy intention and wanted-ness have been the topic of much debate in the literature (Santelli et al., 2003; Trussell et al.,1999; Sable and Wilkinson 2000; Giacaman et al., 2008). Recent

literature distinguishes between unintended and unwanted pregnancy (Santelli et al., 2003; Trussell et al 1999). An unintended pregnancy is one that occurs despite family planning while an unwanted pregnancy is one characterized as unwanted at the time it occurs. In this sense, an unwanted pregnancy tends to add more pressure on mothers.

5.4.7 Participants' husband labor force status:

The mean (3.40) and STD (0.737) of the participants whose husbands were not employed was higher than those whose husbands were employed. Unemployment means no or very low income, poverty and potential problems between the man and wife, and consequently, PPD. According to Radwan, (2007) physical and mental health wellbeing are associated with poverty, social and political injustice. Therefore, this makes women feel desperate and helpless. This is, however, in contradiction with Al-Sa'adawi (1983), who found a high level of depressive symptoms was found among young, better educated, married Egyptian women.

5.5. Discussion of Research Hypothesis One

Research Question Two: Is there an association between the prevalence of postpartum depression and the different demographic variables in this study at 0.05 level of significant?

Hypothesis One was derived from Research Question Two as follows:
There is no significant difference in the prevalence of PPD among Palestinian women in East Jerusalem at 0.05 level of significance.

A correlation analysis was carried out to answer this question, according to which the findings revealed significant differences in the prevalence of PPD among 6 demographic variables: age, locality of residence, dwelling property, participants' educational level, participants' labor force status and the family income; on the other hand, the participants' family type and marital status had no significant difference.

Regarding age, both older and younger women showed an increased risk of PPD (NHMRC, 2000). The results of the current study indicate that young women are more likely to develop PPD. Those findings are in contrast with the findings of Kheirabadi et al. (2009), Sadeghi, et al., (2006); Abiodun (2006); Hudson et al. (2000); Kitamura et al. (2006); Nakku et al. (2006) and Manzano et al (2002), which showed that age was one of several independent variables associated with PPD.

On the other hand, several studies found no significant difference in participants age or marital status at 4 weeks postnatal (Leitch et al., 2006; Muhammad, 2007; Tannous et al., 2008; Tsanani-Eilat et al., 2006). In addition, Paykel et al.(1980), Hopkins et al.,1984; Gotlib et al.,1991; stated that age is not reliably associated with PPD.

As regards participants' educational level, the findings of the current study are in contrast with the findings of several previous studies including: Kheirabadi et al. (2009), Buist et al. (2008). Abdallah (2007), Chayaa et al., (2002), Tashakori, et al., (2009) and Patel et al., (2002).

The findings of the study concerning the participants labor force status are in contrast with the findings of Kheirabadi et al., (2009), Sadeghi et al., (2006); Ghubash & Abou-Saleh (1997); Chaaya, et al., (2002); Alami, et al., (2006); Patel, et al., (2002). However, unemployed women scored significantly higher on PPD in accordance with other studies who found PPD associated to unemployment of women Sadeghi, et al., (2006).

On the other hand, Sadeghi, et al., 2006 failed to find any significant differences in PPD between employed and unemployed women. In addition, no significant relation between PPD and unemployment was found in a Jamaican study conducted by Wissart, et al., (2005).

The family income according to the current study was an associated factor, this was in contrast with the findings of the study of (Kheirabadi et al., (2009); Buist et al., (2008); Sadeghi et al., (2006); Tashakori, et al., (2009) Tannous et al., (2008).

Regarding the locality of residence, the present study showed a positive correlation with sig. value (0.34) between participants' residence locality and PPD. This means that

participants living in camps are more likely to be depressed than those living in other parts of Jerusalem. In camps, unemployment, low education, poverty, low marital age, are all factors associated with PPD, these findings were in accordance with the findings of Inandi et al., (2002).

As for dwelling property, participants whose houses are rented are more likely to be depressed compared with participants who own their houses. In Jerusalem it is very expensive to own a house; getting a building permit from the municipality of Jerusalem is nearly impossible. So many people tend to rent houses or apartments. Renting a house in Jerusalem is quite expensive, and this is quite likely to negatively impact the family financial status often leading to financial problems and consequently depression. According to Najafi et al., (2007), unemployment was found to be an associated factor, while Moraes et al., (2006) reported low economic status as an associated factor.

5.6 Discussion of Research Question Three:

Is there any association between the prevalence of postpartum depression and the non-demographic variables in this study at 0.05 level of significant?

Hypothesis Two, which was derived from this question, states:
There is no correlation between the prevalence of PPD and the study demographic variables at the 0.05 level of significance.

The findings related to this question were based on Pearson's correlation analysis, which was used to investigate the relationship between EPDS and the different study variables. However, the findings indicate that there is an association between the prevalence of postpartum depression and ten of the non demographic variables**:** age at the first marriage, age at the first pregnancy, number of rooms, number of bathrooms, number of household members, number of children, number of deliveries, educational level of the participants' husband, participant's, labor force status of participant's husband, desire for pregnancy and planning for pregnancy.

Early age of marriage and thus early age of pregnancy have the same impact on PPD prevalence as discussed earlier. The Number of rooms and bathrooms in the family residence are related to the family income. More rooms or bathrooms in the house are indicators of good living conditions, high social status and high family income. Therefore, participants from low income families are more likely to be depressed than those with higher incomes, as discussed earlier.

The findings of the present study show that unplanned pregnancy was associated with the development of PPD. This is consistent with other previous studies including: Csatordai et al. (2007); Kitamura et al., (2006); Lau & Keung (2007); Nakku et al., (2006); Sayil et al., (2006). According to Safadi, (2005), Jordanian couples usually prefer to defer a subsequent pregnancy if their last child is still less than one year old and if they have financial difficulties. The Jordanian and the Palestinian cultures are similar, thus this interpretation is applicable to Palestinian couples as well.

Another study of unwanted pregnancy in Egypt by Kader & Maklouf, (1998) found that the main reasons for unwanted pregnancies were the high cost of bringing up a child, the need for parental time and attention, women's health problems that might negatively affect the child, and "bad" timing. The authors reported that unwanted pregnancies tend to upset both parents and are often associated with financial problems.

In the present study, low income and large family size were found to be associated with the development of PPD. This accounts for the stress of having an unwanted pregnancy on the mother. Stressful life events have been reported in many studies as a predictor of antenatal and postnatal depression. Women reporting stressful life events before and during pregnancy are more likely to develop PPD (Bowen & Muhajarine, (2006b); Bugdayci et al., (2004); Dindar & Erdogan, (2007); Goedde, (2003); Horowitz et al., (2005) and Oweis, (2001). Tashakori, et al., (2009) unwanted pregnancy also found to be a risk factor according to Ghubash & Abou-Saleh, (1997) as well as Alami, et al., (2006).

In this study, participants with financial problems seem to be more concerned with the increase in the family expenses associated with a new baby than those with good financial status. This is in agreement with several previous studies Anadajani-Sutajahjo et al.,

(2007); Dindar & Erdogan, (2007); Goedde, (2003); Horowitz & Goodman, (2004); Inandi et al., (2005).

The number of children and household members in this study were associated with the prevalence of PPD. A positive relation was established between PPD and the three mentioned variables. The size of families can add more stress to women's responsibilities and can affect her physically, mentally, as well as financially. Stressfull life events and poor financial conditions are highly associated with PPD Abdallah, (2007); Segre et al., (2000).

On the other hand, the number of pregnancies, deliveries, and children were not associated with PPD Sadeghi et al., (2006).

Although the level of education, place of residence and unwanted pregnancy were found to be significant predictors of PPD in the current study; however, Najafi et al., (2007) found that these variables were not significant predictors.

Socioeconomic deprivation indicators such as unemployment, low income and low education have been cited as risk factors in mental health disorders (Bartley, 1994; Jenkins, 1985; Patel et al., 1999; Weich et al., 1997; World Health Organization, 2001). Recent studies from America, Latin America and Europe reported that depression is more common among poorer countries (World Health Organization, 2001; Stewart 2003).

In addition, unemployment and financial strains were significantly associated with postpartum depression. Stewart, (2003); Lee (2000); Patel (2002) and Seguin (1999) studied low income populations in India, China and Canada respectively and found that financial strain was an important risk factor in postpartum depression within these populations.

The educational level of the participant's husband has two aspects: emotional and financial. Emotionally, the husband's educational level takes the form of lending the participant emotional support, or taking care of the infant. On the other hand, an educated husband tends to have a better labor status, and a steady high family income. Social

support is a multidimensional concept. Sources of support can be a spouse, relatives, friends or associates. Different types of social support exist, for example, informational support (where advice and guidance is given), instrumental support (practical help in terms of material aid or assistance with tasks) and emotional support (expressions of caring and esteem) (Stewart et al., 2003). In general educated husbands tend to be more understanding of this kind of support for their wives (Nasif, 2010).

Receiving social support through the husband or friends and relatives during stressful times is thought to be a protective factor against developing depression (Brugha et al., 1998). The role of social support has been evaluated by several studies Several earlier studies have evaluated the role of social support in reducing postpartum depression**.** (Stewart et al., 2003) it is worthwhile to evaluate the role of husbands support in reducing PPD in future studies.

A husband's unemployment tends to comprise a stressful event to the family and thus may lead to or complicate marital conflicts. Marital conflicts and lack of partner support are commonly cited as variables associated with the development of PPD (Abbott & Williams, 2006; Aydin et al., 2005; Bowen & Muhajarine, 2006b; Dindar & Erdogan, 2007; Green et al., 2006; Lau & Keung, 2007; Lee & Chung, 2007) and Alami, et al., 2006). On the other hand Tsanani-Eilat et al., (2006) didn't find any association between unemployed and the prevalence of PPD.

5.7 Discussion of Hypothesis Two:

As the hypothesis states, there is no correlation between the prevalence of PPD and the study variables at the 0.05 level of significance.

In order to answer question two hypothesis a stepwise chi-square analysis of the demographic and non demographic categorical variables was carried out. The results indicated that the following demographic variables kept their significance: residence locality, educational level of participant, dwelling property, participant's labor force and participant's labor force after delivery. On the other hand, the non-demographic variables that are associated with the prevalence of PPD were the following: husband's educational

level, labor force status of husband, desire for pregnancy and planning for pregnancy. This indicates that the significance of association previously established for these variables was not accidental. While, on the other hand the nature of delivery, age of last child, gender of child, and multiple births were all found to non-significant correlates of EPDS. Pearson's correlation coefficients were all close to zero , with sig. values greater than (0.05); consequently, all these variables were excluded from the analysis.

Anyhow, according to this study, there was no correlation between the prevalence of PPD and the nature of delivery at the 0.05 level of significance. However, this result was in consent of the findings of Josefsson, et al., 2002. As for Patel et al., (2005) they reported that caesarean section does not protect against postnatal depression. While Chaaya et al., (2002) stated that caesarean section decreased the risk of PND among Lebanese women compared with vaginal birth which increased the risk.

Boyce & Todd, (1992) reported a significant relationship between caesarean section and developing PND at three months. They reported also that women in their study who experienced an emergency caesarean section had more than six times the risk of developing PND. In contrast, other studies found no significant association between elective or emergency caesarean section and development of PND (Careter, Frampton, & Mulder, 2006; Johnstone et al., 2001; Forman et al., 2000; Warner et al., 1996). Similarly, the present study found no association between elective or emergency caesarean section and development of PND.

Chaaya et al., (2002) reported that normal vaginal birth increases the risk of PND among Lebanese women. This is related to the fact that Lebanese women see normal birth as a source of stress, fear and pain. However, according to a study done by Muhammad, (2007) more than half of the women reported that their pain and discomfort during labor and birth were much worse than they expected or a little worse than they expected. These women were more likely to develop PND. Similarly, some other studies reported that painful labor and birth increased the risk of PND (Goedde, 2003, Leung, 2001; Oweis, 2001).

As for the results of the gender of the child, there was no correlation between the prevalence of PPD and gender of the infant at the 0.05 level of significance. However, the

findings were in contrast with studies conducted within western societies have found no association between gender of the baby and postpartum depression. However, recent studies on the developing countries such as India, China, Turkey, United Arab Emirates, Jordan, suggest that disappointment with the gender of the baby, specifically if the baby is a girl, is significantly associated with developing PND (Abiodun, 2006; Dindar & Erdogan, 2007; Goldbort, 2006; Green et al., 2006; Kitamura et al., 2006; Nakku et al., 2006, Oweis, 2001). Therefore, the parent's reaction to the gender of the baby may be a potential risk factor for PND within certain cultural groups.

Moreover, there was no association of abortion and infant deaths were found in the current study it significantly associated with PPD according to Najafi et al., (2007).

5.8 Discussion of Research Question Four

What are the most significant risk factors on postpartum depression according to this study?

The findings of this study established 12 significant risk factors or predictors for higher prevalence of PPD. Those predictors were: number of children, number of deliveries, age at the first marriage, age at the first pregnancy, residence locality, participant's educational level, desire for pregnancy, participant's husband's educational level, participant's husband's labor force status, age, dwelling property and family income.

According to the literature, thirteen significant predictors of postpartum depression were revealed in a meta-analysis study by Beck, (2001). Ten of these 13 risk factors had a moderate impact size, while three predictors had a small impact size. The mean impact size indicator ranges for each risk factor were as follows: prenatal depression, self esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, history of previous depression, infant temperament, maternity blues, marital status, socioeconomic status and unplanned/ unwanted pregnancy (Beck, 2001).

Moreover, according to Warner et al., (1996) four independent variables were found to be associated with an EPDS score above the normal threshold. These were: unplanned

pregnancy (OR 1.44); no breast-feeding (OR 1.52), and unemployment for the mother, i.e. no job to return to following maternity leave (OR 1.56), or the head of household (OR 1.50). These four variables appear to explain the risk associated with other risk factors. According to O'Hara and Swain, (1996), the strongest predictors of postpartum depression were past history of psychopathology and psychological disturbance during pregnancy, poor marital relationship and low social support, and stressful life events. Finally, indicators of low social status showed a small but significant predictive relation to postpartum depression. In sum, these findings generally mirror the conclusions from earlier qualitative reviews of postpartum depression risk factors

Based on current research, the strongest predictors of postpartum depression are participants who had many children and were exposed to many deliveries experiences, as well as participant's age at the first marriage and at the first pregnancy. Early marriage is still prevalent in the Palestinian territory; according to PCBS (2007) more than two thirds of ever married and currently married women aged 15-19 years old were 17 years old or less at the first marriage. However, early marriage, especially below 18, has bad health consequences on mother and child and could also hinder a woman's chances of further education and joining the labor market (PCBS 2007).

Residence locality was found to be among the highest 5 predictors of PPD in this study. According to the findings of the current study, there is a positive relation with the residents of participants and the PPD prevalence, which means according to the variable residence locality the choice ranked (5) which is the (camp), had a higher prevalence of PPD among participants who applied the EPDS. However, this indicates that women living in highly crowded places of residence like (camps) and low socioeconomic status are at high risk of developing PPD. Thus the current study highlights the highest risk factors for developing PPD among young, married women, with a low education, a large family and living in low socioeconomic areas. The prevalence of PPD was greatest among mothers with lower socioeconomic level and less schooling. Low income was the greatest predictor (Moraes et al., 2006).

The common predictor found between the existing study and previous studies was the desire of pregnancy or unwanted pregnancy (Beck, 2001; Warner et al., 1996). In addition,

unemployment was found to be a strong predictor (Warner et al., 1996) whether for the participant or the husband.

A significant association was found between puerperal depression and history of depression before, during pregnancy and immediately after delivery. Puerperal depression was also associated with stated chronic illness, scant help with domestic tasks and low family affective support and prevalence of postnatal depression between 11.8% and 19.8% of women between the sixth and eighth week of the puerperal period, which is linked to depression immediately after delivery (Machado et al., 1997). In addition, undesired gender of the child, unplanned pregnancy, and history of depression were the main risk factors of postpartum depression in Kheirabadi et al., (2009).

Other predictors of PPD were found in other studies such as: past history of psychopathology, poor marital relationship and low social support and stressful life events (Michael O'Hara, 1996).

5.9 Limitations of the study:

The present study investigated the prevalence rate of PPD and its associated and risk factors among Arab women only in East Jerusalem. Limiting the locality to East Jerusalem restricts the gneralizability of the results of the study. It would have been worthwhile to explore the rate of PPD among Arab women living in the West Bank or even in Israel.

Although the present study investigated a large number of non-demographic risk factors for the onset of post-partum depression, other potential variables could have been included such as: formula feeding vs. breastfeeding, history of depression, smoking (McCoy et al., 2006).

The present study failed to include the significant association between puerperal depression and history of depression before, during pregnancy and immediately after delivery (Machado et al., 1997)

It is recommended that future research on the prevalence rates of PPD among Palestinian women would include these variables.

5.10 Recommendations

The current study has shown that the strongest predictors of postpartum depression are number of children, number of deliveries, age at first marriage and at first pregnancy, crowded residence locality, low educational level of woman and husband, participant's labor force status ,age, dwelling property, family income. Based on the results of the present study, a number of implications and recommendations for people in various capacities are made for managing PPD according to these demographic and socioeconomic.

As for policy makers it's recommended that the marital age of women is over 18 by law legislation. Other implication may be addressed to clinical practice and health services management as follows:

5.10.1 Implications for clinical practice

All the potential risk factors can be ascertained during routine pregnancy care; therefore, it is important that antenatal healthcare providers (including obstetricians, prenatal nurses, and family doctors), and women themselves are educated about these risk factors (early age marriage, low level of education, unemployment, unwanted pregnancies, large family, low incomes).

5.10.1.1 Clinicians:

It is important for clinicians to ensure a thorough clinical history is obtained which specifically asks about previous episodes or feelings of depression. It is highly probable that many women may have experienced symptoms previously but never sought treatment. Eliciting information on antenatal depressive and anxiety symptoms is especially difficult, since women may view these feelings as normal consequences of pregnancy. However, clinician's monitoring of mood during pregnancy could be helpful.

5.10.1.2 Physicians:

Physicians should also be aware of potentially vulnerable groups, including women experiencing marital problems, those who have undergone stressful life events, those from lower socioeconomic groups, and those under financial strain.

5.10.1.3 Healthcare professionals:

Healthcare professionals should be aware that the occurrence of illness during the puerperium has consequences for the mother, her marital relationship, and her children. Adverse outcomes for the mother in terms of ongoing illness, the health and well-being of the mother and child and the effects on the family call for early diagnosis and treatment.
Although all women are susceptible to developing postpartum depression, it is possible for physicians and healthcare professionals to identify women at higher risk antenatal for closer follow-up and intervention where necessary. Fortunately, treatments found to be effective for depression including interpersonal psychotherapy and antidepressant drugs are also safe and efficacious in postpartum women, including those who are breastfeeding.

5.10.2 Implications for health service management

One of the strategies to implement evidence based practice is the commitment and funding of continuing professional development for health workers. The present study highlights the need for continuing professional development for health care providers. This should specifically include opportunities to learn about perinatal mental prevention it's assessment, and management.

5.10.2.1 Primary intervention

Health care professionals are expected to provide education to their clients and keep themselves updated on postpartum depression

* Educate pregnant women and their partners about the symptoms of postpartum depression in all prenatal classes.

* Educate pregnant women and their partners about the changes that occur after birth, including the changes in roles, responsibilities, and relationships.
* Provide written information about the symptoms of postpartum depression to pregnant women or to new parents (e.g. brochures, documents, etc..).
* Support all new parents through the provision of home visits or telephone support as well as written information.
* Provide education for all health care professionals servicing new parents.
* Provide media campaigns regarding postpartum depression.
* Screen for PPD among pregnant women to identify those who are at high risk for developing PPD postpartum for further follow up.

5.10.2.2 Secondary intervention

* Health care professionals have a great responsibility when dealing with postpartum depression. Due to the fact that many women feel ashamed or embarrassed to come forward, healthcare professionals must be very knowledgeable in the areas of warning signs and symptoms so that women who present such signs can get the help that they need.
* Social support appears to be an important aspect of prevention and this begins as mentioned earlier with healthcare professionals who should provide education, encouragement and sensitivity to new mothers to eliminate or minimize factors that could contribute to the development of postpartum depression.
* Support and encouragement in childcare by providing information and educating mothers and family members specially spouse, as well as females in the family, mother, mother-in-law, sisters ...etc, so as to provide any assistant for the mothers.
* Encourage women for breastfeeding, for breastfeeding had been found as a protector of PPD.
* It is recommended that EPDS should be applied in maternity clinics especially for women who are at high risk to develop PPD during their pregnancy so that intervention can be started.

5.10.2.3 Tertiary Intervention:

* Women should also be prepared for possible adjustment problems after birth and should be trained in coping strategies to prevent PPD or minimize its effects.
* Early identification and treatment of perinatal depression will minimize morbidity and mortality for women, children and families.

5.10.3 Implications for future research

* It is recommended that further research be done to fill in gaps in our understanding of the high prevalence of PPD in the Palestinian society in exploration to other obstetric, socio, political and cultural risk factors associated with PPD
* The role of pregnancy wantedness in determining EPDS scores indicates that further research is also required to understand the nature and meaning of pregnancy wantedness in the Occupied Palestinian Territory in order to institute more effective practices.
* It is recommended to study the affect of culture norms on developing PPD among Arab women, who have shown higher prevalence of PPD inside Israel, compared to Jewish Israeli women. Therefore, it is necessary for further comparative research to be conducted among Palestinian women in Jerusalem, Israel, and the Palestinian Authority Territory to evaluate the prevalence of PPD among them and the associated factors.

5.11 Conclusion

The incidence of antenatal and postnatal depression as established by the present study was high among this sample of Palestinian women in East Jerusalem. The results showed that the high risk population is among women with large number of children, and who are less educated and unemployed. Overall, women in low socioeconomic status, uneducated, unemployed spouses, live in crowded places and with low financial income were among the high risk population. Unwanted and unplanned pregnancy was also an indicator for developing PPD among those women.

It is recommended that further research be carried out to investigate the prevalence of PPD among Palestinian women living inside villages and cities in Israel as well as in the Palestinian Authority cities and villages, so as to explore the other associated factors obstetric or cultural, that affect the development of PPD among those women.

It is hoped that this study will impact the different professionals who are involved in women and child health care to be able to prevent and manage PPD in the Palestinian society in Jerusalem and reduce the adverse effects of PPD on women, their families and the broader community.

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Appendices

Appendice 1.1

The prevalence of PPD in the Arab World and Palestine

Country	Title, Author and Year	PPD prevalence %	Study Tool
Jordan	Mohammad, K. et al., (2010): Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women.	22	EPDS and other tools
Jordan	Mohammad, K. 2007: Incidence and factors associated with postnatal depression among Jordanian women.	22.1 (6-8 week postpartum) 21.2 (6 months) postpartum	EPDS
Morocco	Alami et. al., 2006: Prevalence and psychosocial correlates of depressed mood during and after childbirth.	17	EPDS
Gaza Strip	Sammour, A. 2002. Prevalence and risk factors of postpartum depression in Gaza Strip, Palestine.	69	EPDS
Lebanon	Chaaya, et. al, 2002: Postpartum depression: prevalence and determinants in Lebanon. (Beirut & Biqa'a Valley)	26	EPDS
United Arab Emirates	Abou Saleh, et al., 1997: Postpartum psychiatric illness in Arab culture: Prevalence and psychosocial correlates.	18 24	EPDS SRQ

Appendice 2.1

DSM-IV-TR Criteria for Major Depressive Disorder

Criteria for Major Depressive Episode

Five (or more) of the following symptoms have been present during the same 2 week period and represent a change from previous functioning: at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions of hallucinations.

- Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g feels sad or empty) or observation made by others (e.g. appears tearful)
- Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
- Significant weight loss when not dieting or weight gain (e.g. a change of more than 5% of the body weight in a month), or decrease in appetite nearly every day
- Insomnia or hypersomnia nearly every day
- Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
- Fatigue or loss of energy nearly every day
- Feeling of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
- Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).
- Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
- The symptoms do not meet criteria for a Mixed Episode
- The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- The symptoms are not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition (e.g. hypothyroidism)
- The symptoms are not better accounted for by Bereavement, i.e. after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms or psychomotor retardation.
- Postpartum onset specifier: Onset of episode within 4 weeks postpartum.

Appendice 3.1

جامعة القدس

كلية الصحة العامة

سيدتي المحترمة،

تقوم الباحثة باجراء دراسة حول (مدى انتشاراكتئاب ما بعد الولادة لدى النساء العربيات في القدس الشرقية).

انك تشاركين في تعبئة هذه الاستمارة بصفتك جزءا من عينة الدراسة العشوائية، وليس بصفتك الشخصية، لذلك لا نطلب أية معلومات تدل على شخصيتك.

نرجو التكرم بالاجابة على بنود الاستمارة بكل اهتمام ودقة.

إرشادات:

- اقرأي كل عبارة بعناية واختاري الاجابة المناسبة لك.
- لا يوجد اجابة صحيحة وأخرى خاطئة، لذلك اختاري الاجابة التي تناسبك.

شكرا لوقتك وحسن تعاونك

الباحثة: فتنة موسى يوسف شهوان

6. ملكية منزل العائلة

1) ملك

2) ايجار

7. عدد غرف النوم في المنزل ☐

8. عدد الحمامات في المنزل ☐

9. أعيش مع:

1) أنا وزوجي فقط

2) أنا وزوجي وأولادنا

3) أنا وزوجي ووالديه / او احدهما

4) أنا وزوجي وافراد عائلته

5) أنا وزوجي وافراد من عائلتي

6) غير ذلك حددي.....

10. عدد أفراد أسرتي ☐

11. مستوى تعليمي:

1) ابتدائي فأقل

2) اعدادي

3) ثانوي

4) دبلوم متوسط

5) بكالوريوس

6) ماجستير/ دكتوراة

12. الحالة التعليمية لزوجك:

1) ابتدائي فأقل
2) اعدادي
3) ثانوي
4) دبلوم متوسط
5) بكالوريوس
6) ماجستير/ دكتوراة

13. هل زوجك؟

1) يعمل
2) لا يعمل

14. تواجد زوجك مع العائلة:

1) بشكل دائم
2) في نهاية الاسبوع
3) بشكل شهري
4) بشكل سنوي

15. هل تعملين حاليا:

1) نعم
2) لا

16. حددي ما هو عملك؟ .....

17. ما هو وضعك في العمل فيما يتعلق بولادتك الاخيرة؟

1) كنت اعمل اثناء فترة الحمل ، وعدت للعمل بعد استراحة الولادة
2) كنت اعمل اثناء فترة الحمل وتركت العمل بعد الولادة
3) لم اعمل اثناء فترة الحمل ولم اعمل بعد الولادة
4) لم اعمل اثناء فترة الحمل وعملت بعد الولادة

18. ما دخل أسرتك بالشيكل:

1) 1500–2500 شيكل
2) 2501–3500 شيكل
3) 3501–4500 شيكل
4) أكثر من 4500 شيكل

19. عدد أولادك الحالي ☐

20. عدد مرات الولادة ☐

21. عدد مرات الاجهاض أو الوفيات ☐

22. هل كان لديك رغبة في الحمل الاخير:

1) نعم
2) لا

23. هل قمت بالتخطيط للحمل الأخير:

1) نعم
2) لا

24. أين حدثت الولادة الأخيرة:

1) البيت
2) العيادة

3) مستشفى

4) غير ذلك حددي .....

25. كيف كانت ظروف عملية الولادة الأخيرة لك:

1) طبيعية

2) قيصرية

3) تم استخدام الشفط أو الملقط

4) تم عمل جرح لي أثناء الولادة

26. تاريخ انجاب آخر مولود

يوم	شهر	سنة
☐	☐	☐

27. جنس المولود

ذكر	أنثى
☐	☐

28. توأم

نعم	لا
☐	☐

29.جنس المولود

☐	☐

Appendice 3.2

As you have recently had a baby, we would like to know how you are feeling now. Please record the answer that comes closest to how you have felt **in the past 7 days, not just how you feel today.**

1. I have been able to laugh and see the funny side of things:

   1 As much as I always could 0 _____

   2 Not quite as much now 1 _____

   3 Definitely not so much now 2 _____

   4 Not at all 3 _____

2. I have looked forward with enjoyment to things:

   1 As much as I ever did 0 _____

   2 Rather less than I used to 1 _____

   3 Definitely less than I used to 2 _____

   4 Hardly at all 3 _____

3. I have blamed myself unnecessarily when things went wrong:

   1 Yes, most of the time 3 _____

   2 Yes, some of the time 2 _____

   3 Not very often 1 _____

   4 No, never 0 _____

4. I have felt worried and anxious for no very good reason:

   1 No, not at all 0 _____

   2 Hardly ever 1 _____

   3 Yes, sometimes 2 _____

   4 Yes, very often 3 _____

5. I have felt scared and panicky for no very good reason:

1 Yes, quite a lot 3 _____

2 Yes, sometimes 2 _____

3 No, not much 1 _____

4 No, not at all 0 _____

6. Things have been getting on top of me:

1 Yes, most of the time I haven?t been able to cope at all 3 _____

2 Yes, sometimes I haven?t been coping as well as usual 2 _____

3 No, most of the time I have coped quite well 1 _____

4 No, I have been coping as well as ever 0 _____

7. I have been so unhappy that I have had difficulty sleeping

1 Yes, most of the time 3 _____

2 Yes, sometimes 2 _____

3 Not very often 1 _____

4 No, not at all 0 _____

8. I have felt sad or miserable:

1 Yes, most of the time 3 _____

2 Yes, quite often 2 _____

3 Not very often 1 _____

4 No, not at all 0 _____

9. I have been so unhappy that I have been crying:

1 Yes, most of the time 3 _____

2 Yes, quite often 2 _____

3 Only occasionally 1 _____

4 No, never 0 _____

10. The thought of harming myself has occurred to me:

1 Yes, quite often 3 _____ (please ask for help)

2 Sometimes 2 _____ (please ask for help)

3 Hardly ever 1 _____ (please ask for help)

4 Never 0 _____

Appendice 3.3

مقياس ادنبره لكآبة ما بعد الولادة: الأسئلة التي سوف نطرحها عليك تشمل الأسابيع القليلة الماضية. **للمحققة: استعملي اللهجة العامية في قراءة الأسئلة.**			
1.	-قدرتي تضحكي وتشوفي الحياة حلوة؟	**صفر** - مثل العادة **1** -أقل من العادة **2** -أقل بكثير من العادة **3** -أبداً	|___|
2.	- إذا نظرتي للأمور المحيطة فيكي، بتتمتعي فيا:	**صفر** -مثل العادة **1**-أقل من العادة **2** -أقل بكثير من العادة **3** -بالكاد	|___|
3.	-لمت حالك بغير ضرورة لما يصير شي غلط؟	**3** -نعم ، أكثر الأحيان **2** -نعم ، بعض الأحيان **1** -بالكاد **صفر** -أبدا	|___|
4.	-كنت مهمومة أو متوترة لأي سبب مهما كان بسيط؟	**صفر** -أبدا **1** -بالكاد **2** -نعم، بعض الأحيان **3** -نعم ، أكثر الأحيان	|___|
5.	-حسيتي بالخوف لسبب ما بيخوفك بالعادة؟	**3** - نعم، أكثر الأحيان **2** - نعم ، في بعض الأحيان **1** - بالكاد **صفر** - ابدا	|___|
6.	-صرتي تحملي هم؟	**3** -نعم، أكثر بكثير من العادة **2** -نعم، أكثر من العادة **1** -لا، مثل العادة	|___|

	صفر -لا، ابدا		
7.	**3** -نعم ، أكثر الأحيان **2**-نعم ، **بعض** الأحيان **1** - بالكاد **صفر** - أبدا	-كنت مش مرتاحة لدرجة صار عندك مشاكل بالنوم؟	|___|
8.	**3** -نعم ، أكثر الأحيان **2** -نعم ، **بعض** الأحيان **1** - بالكاد **صفر** - أبدا	-شعرت أنك تعيسة ومش مرتاحة؟	|___|
9.	**3** -نعم ، أكثر الأحيان **2** -نعم ، **بعض** الأحيان **1**- بالكاد **صفر** -لا، أبدا	-كنت مش مرتاحة لدرجة انك بكيت؟	|___|
10.	**3**-نعم ، أكثر الأحيان **2**-نعم ، **بعض** الأحيان **1**-بالكاد **صفر**-لا، أبدا	-فكرت تؤذي حالك شي؟	|___|

Appendice 3.4

مقياس ادنبره لكآبة ما بعد الولادة: الأسئلة التي سوف نطرحها عليك تشمل الأسابيع القليلة الماضية. **للمحققة: استعملي اللهجة العامية في قراءة الأسئلة.**			
48a	-قدرتي تضحكي وتشوفي الحياة حلوة؟	صفر - مثل العادة 1 -أقل من العادة 2 -أقل بكثير من العادة 3 -أبداً	
48b	- إذا نظرتي للأمور المحيطة فيكي، بتتمتعي فيا:	**صفر** -مثل العادة **1**-أقل من العادة **2** -أقل بكثير من العادة **3** -بالكاد	
48c	-لمت حالك بغير ضرورة لما يصير شي غلط؟	**3** -نعم ، أكثر الأحيان **2** -نعم ، بعض الأحيان **1** -بالكاد **صفر** -أبدا	
48d	-كنت مهمومة أو متوترة لأي سبب مهما كان بسيط؟	**صفر** -أبدا **1** -بالكاد **2** -نعم، بعض الأحيان **3** -نعم ، أكثر الأحيان	
48e	-حسيتي بالخوف لسبب ما بيخوفك بالعادة؟	**3** - نعم، أكثر الأحيان **2** - نعم ، في بعض الأحيان **1** - بالكاد **صفر** - ابدا	
48f	-صرتي تحملي هم؟	**3** -نعم، أكثر بكثير من العادة **2** -نعم، أكثر من العادة **1** -لا، مثل العادة **صفر** -لا، ابدا	
48g	-كنت مش مرتاحة لدرجة صار عندك مشاكل بالنوم؟	**3** -نعم ، أكثر الأحيان **2**-نعم ، **بعض** الأحيان **1** - بالكاد	

		صفر - أبدا	
48h	-شعرت أنك تعيسة ومش مرتاحة؟	**3** -نعم ، أكثر الأحيان **2** -نعم ، **بعض** الأحيان **1** - بالكاد **صفر** - أبدا	|__|
48I	-كنت مش مرتاحة لدرجة انك بكيت؟	**3** -نعم ، أكثر الأحيان **2** -نعم ، **بعض** الأحيان **1**- بالكاد **صفر** -لا، أبدا	|__|
48j	-فكرت تؤذي حالك شي؟	**3**-نعم ، أكثر الأحيان **2**-نعم ، **بعض** الأحيان **1**-بالكاد **صفر**-لا، أبدا	|__|

بسم الله الرحمن الرحيم

Al-Quds University

Jerusalem

School of Public Health

جـامـعـة الـقـدس

القدس

كلية الصحة العامة

Appendice 3.5

Date: 16\ 4\ 2009

To whom it may concert

Subject: Visit to the Mother & Child Care Centers in Jerusalem

Mrs. Futna Shahwan is a graduate student at Al_Quds University, School of Public Health, Community Mental Health Programme, her thesis is about Postpartum depression & its prevalence among Arab women in Jerusalem, and needs to gather data about this subject from women coming to your centers.

I would be grateful if you allow her to visit your centers.

For further information please don't hesitate to contact me at:

- Email: Naj_kh@live.com
- Phone: 02/2751148
- Cell phone: 0599728596
- Fax: 02/2799234

Thank you in advance.

Dr. Najah Khatib

Najah Al-Khatib

Jerusalem Branch/Telefax 02-2799234

Gaza Branch/Telefax 08-2878166,2878177

P.O. box 51000 Jerusalem

فرع القدس / تلفاكس 02-2799234

فرع غزة / تلفاكس 08-2878166-2878177

ص.ب. 51000 القدس

Appendice 3.6

Edinburgh Postnatal Depression Score Calculator

Many health visitors use the Edinburgh Postnatal Depression Score (EPDS) as a screening method for depression in the post natal period, see related article on Postnatal Depression.[1]

- This is a self-report questionnaire which is both easy to complete and acceptable to the mother.
- Evidence from a number of research studies has confirmed the tool to be both reliable and sensitive in detecting depression and it has been validated for use in the community.[1,2,3]
- New mothers usually complete it 6-8 weeks post partum.
- A score of 11-12/30 has a sensitivity of 76.7% and specificity of 92.5% for depression.
- It should be confirmed by interview and mental state examination.

To use calculator, click on appropriate answer and score appears in box when all questions completed.

Edinburgh Postnatal Depression Score (EPDS)
Ask patient how they have been feeling OVER THE LAST 7 DAYS, not just today.

1. I have been able to laugh and see the funny side of things	0 points - As much as I always could 1 point - Not quite so much now 2 points - Definitely not so much now 3 points - Not at all
2. I have looked forward with enjoyment to things	0 points - As much as I ever did 1 point - Rather less than I used to 2 points - Definitely less than I used to 3 points - Hardly at all
3. I have blamed myself unnecessarily when things went wrong	3 points - Yes, most of the time 2 points - Yes, some of the time 1 point - Not very often 0 points - No, never

4. I have been anxious or worried for no good reason	0 points - No, not at all 1 point - Hardly ever 2 points - Yes, sometimes 3 points - Yes, very often
5. I have felt scared or panicky for no very good reason	3 points - Yes, quite a lot 2 points - Yes, sometimes 1 point - No, not much 0 points - No, not at all
6. Things have been getting on top of me	3 points - Yes, most of the time I haven't been able to cope at all 2 points - Yes, sometimes I haven't been coping as well as usual 1 point - No, most of the time I've coped quite well 0 points - No, I've been coping as well as ever
7. I have been so unhappy, I have had difficulty sleeping	3 points - Yes, most of the time 2 points - Yes, sometimes 1 point - Not very often 0 points - No, not at all
8. I have felt sad and miserable	3 points - Yes, most of the time 2 points - Yes, sometimes 1 point - Not very often 0 points - No, not at all
9. I have been so unhappy that I have been crying	3 points - Yes, most of the time 2 points - Yes, quite often 1 point - Only occasionally 0 points - No, never

Appendice 3.7

Cronbach's Alpha of the EPDS tool

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.720	0.623	29

Appendice 3.8

Response to Edinburgh Postnatal Depression Questions

No	Question		Count	Percent
1	**I have been able to laugh and see the funny side of things**		**274**	
	0	As much as I always could	142	51.8
	1	Not quite so much now	102	37.2
	2	Definitely not so much now	25	9.1
	3	Not at all	5	1.8
2	**I have looked forward with enjoyment to things**			
	0	As much as I ever did	137	50.0
	1	Rather less than I used to	100	36.5
	2	Definitely less than I used to	21	7.7
	3	Hardly at all	16	5.8
3	**I have blamed myself unnecessarily when things went wrong**			
	3	Yes, most of the time	30	10.9
	2	Yes, some of the time	28	10.2
	1	Not very often	153	55.8
	0	No, never	63	23.0
4	**I have been anxious or worried for no good reason**			
	0	No, not at all	21	7.7
	1	Hardly ever	49	17.9
	2	Yes, sometimes	151	55.1
	3	Yes, very often	53	19.3
5	**I have felt scared or panicky for no very good reason**			
	3	Yes, quite a lot	61	22.3
	2	Yes, sometimes	41	15.0
	1	No, not much	140	51.1
	0	No, not at all	32	11.7
6	**Things have been getting on top of me**			
	3	Yes, most of the time I haven't been able to cope at all	17	6.2
	2	Yes, sometimes I haven't been coping as well as usual	71	25.9
	1	No, most of the time I have coped quite well	106	38.7
	0	No, I have been coping as well as ever	80	29.2
7	**I have been so unhappy that I have had difficulty sleep**			
	3	Yes, most of the time	71	25.9
	2	Yes, sometimes	31	11.3
	1	Not very often	128	46.7
	0	No, not at all	44	16.1
8	**I have felt sad or miserable**			
	3	Yes, most of the time	93	33.9
	2	Yes, quite often	22	8.0
	1	Not very often	133	48.5
	0	No, not at all	26	9.5
9	**I have been so unhappy that I have been crying**			
	3	Yes, most of the time	59	21.5
	2	Yes, quite often	53	19.3
	1	Only occasionally	121	44.2
	0	No, never	41	15.0
10	**The thought of harming myself has occurred to me**			
	3	Yes, quite often	238	86.9
	2	Sometimes	9	3.3
	1	Hardly ever	20	7.3
	0	Never	7	2.6

Appendice 4.1

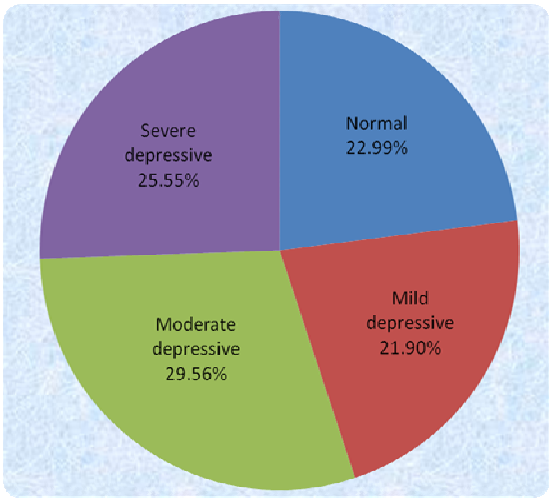


Figure 1: Distribution of Edinburgh Postnatal Depression Scale

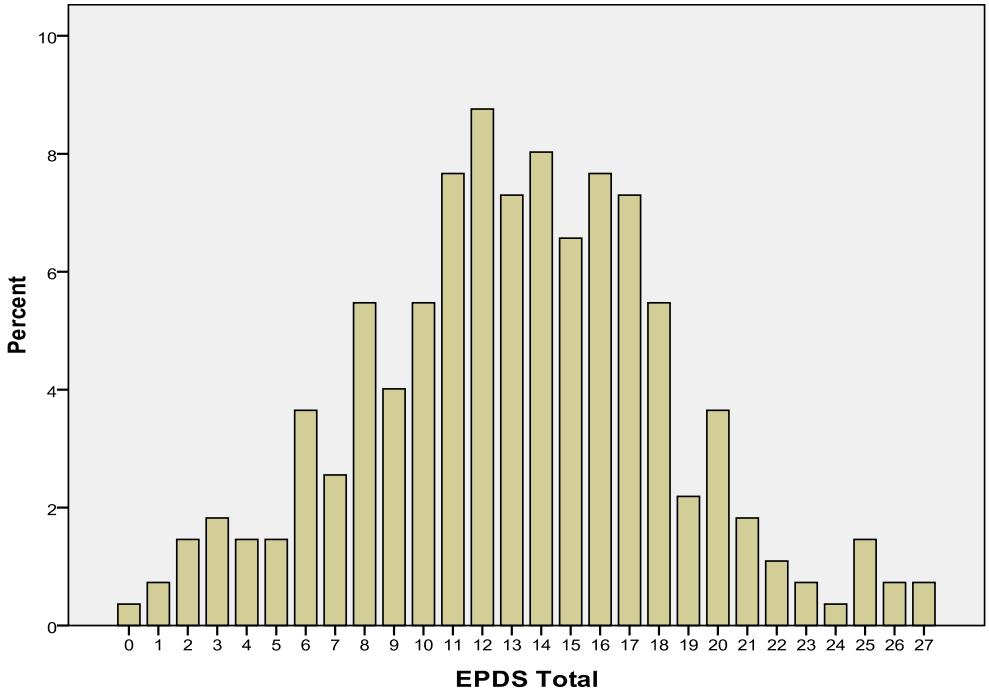


Figure 2: Distribution of Edinburgh Postnatal Depression Total Scores

Appendice 4.2

Figure 3.1

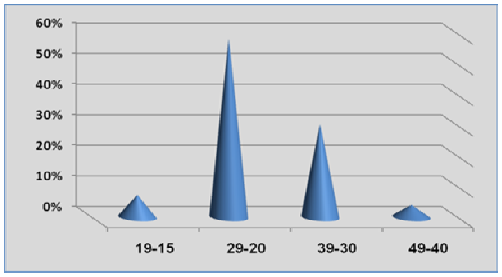


Figure 3.2

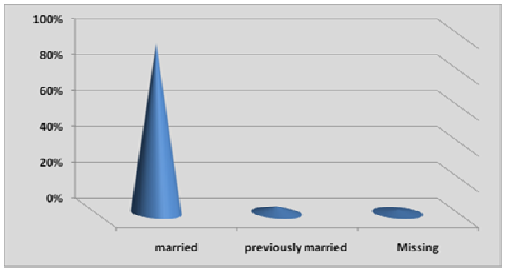


Figure 3.5

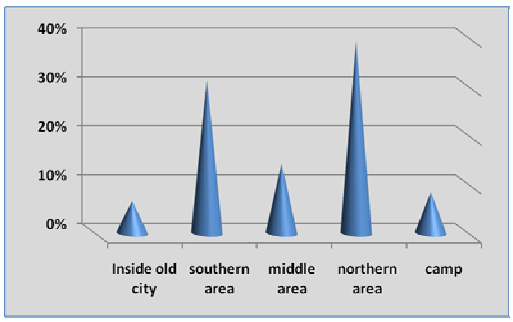


Figure 3.5

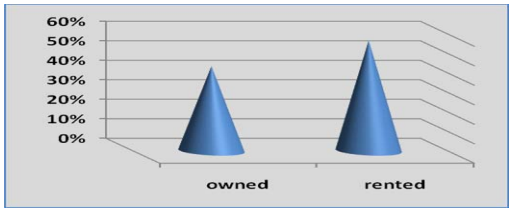


Figure 3.7

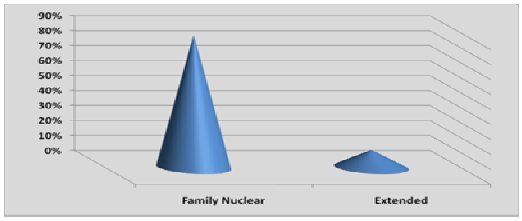
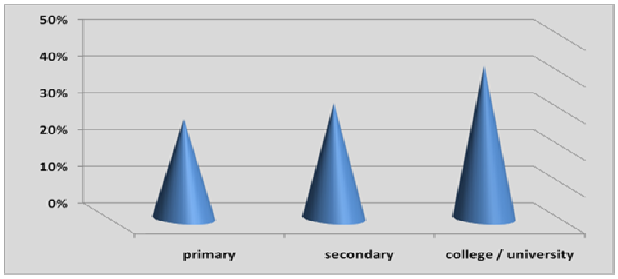


Figure 3.8



3.9

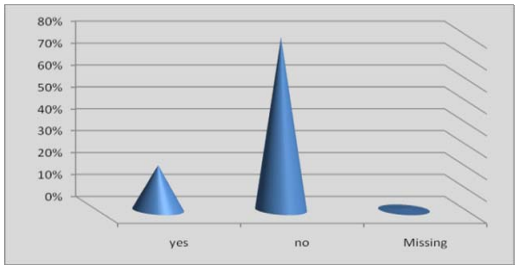
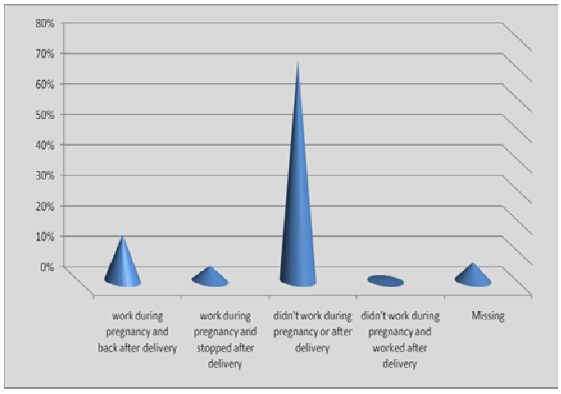


Figure 3.10



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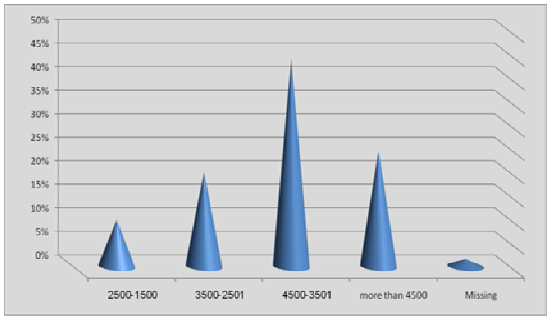


Appendice 4.3

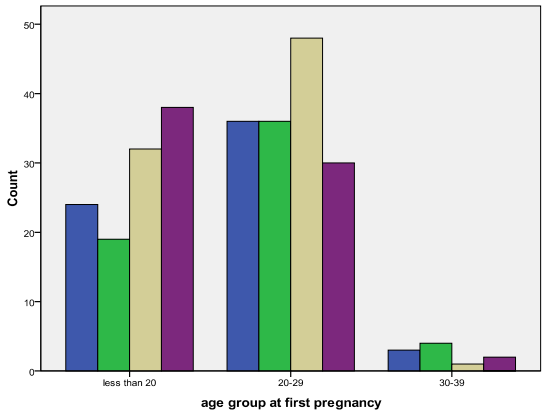
Question number 3:

Question number 3: the association between the prevalence of postpartum depression and the other variables in this study at 0.05 level of significant

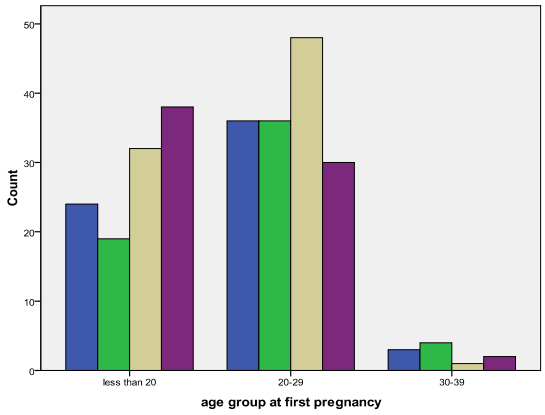
Table 2.6.c

Distribution of EPDS Scales on age at first pregnancy

age at first pregnancy	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
less than 20	Count	24	19	32	38	113
	% within age	21.2%	16.8%	28.3%	33.6%	100.0%
	% of Total	8.8%	7.0%	11.7%	13.9%	41.4%
20-29	Count	36	36	48	30	150
	% within age	24.0%	24.0%	32.0%	20.0%	100.0%
	% of Total	13.2%	13.2%	17.6%	11.0%	54.9%
30-39	Count	3	4	1	2	10
	% within age	30.0%	40.0%	10.0%	20.0%	100.0%
	% of Total	1.1%	1.5%	.4%	.7%	3.7%
Total	Count	63	59	81	70	273
	% within age	23.1%	21.6%	29.7%	25.6%	100.0%
	% of Total	23.1%	21.6%	29.7%	25.6%	100.0%



age at first pregnancy	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
less than 20	Count	24	19	32	38	113
	% within age	21.2%	16.8%	28.3%	33.6%	100.0%
	% of Total	8.8%	7.0%	11.7%	13.9%	41.4%
20-29	Count	36	36	48	30	150
	% within age	24.0%	24.0%	32.0%	20.0%	100.0%
	% of Total	13.2%	13.2%	17.6%	11.0%	54.9%
30-39	Count	3	4	1	2	10
	% within age	30.0%	40.0%	10.0%	20.0%	100.0%
	% of Total	1.1%	1.5%	.4%	.7%	3.7%
Total	Count	63	59	81	70	273
	% within age	23.1%	21.6%	29.7%	25.6%	100.0%
	% of Total	23.1%	21.6%	29.7%	25.6%	100.0%



Desire for pregnancy

	Statistics		EPDS Scale				Total
			Normal	Mild depressive	Moderate depressive	Severe depressive	
desire for pregnancy	yes	Count	52	53	59	48	212
		% of Total	19.1%	19.5%	21.7%	17.6%	77.9%
	no	Count	10	7	21	22	60
		% of Total	3.7%	2.6%	7.7%	8.1%	22.1%
	Total	Count	62	60	80	70	272
		% of Total	22.8%	22.1%	29.4%	25.7%	100.0%

Planning for pregnancy

age at first pregnancy		Statistics	EPDS Scale				Total
			Normal	Mild depressive	Moderate depressive	Severe depressive	
	yes	Count	35	35	46	41	157
		% of Total	12.9%	12.9%	16.9%	15.1%	57.7%
	no	Count	27	25	34	29	115
		% of Total	9.9%	9.2%	12.5%	10.7%	42.3%
	Total	Count	62	60	80	70	272
		% of Total	22.8%	22.1%	29.4%	25.7%	100.0%

Place of delivery

		Statistics	EPDS Scale				Total
			Normal	Mild depressive	Moderate depressive	Severe depressive	
place of delivery	clinic	Count	0	0	0	2	2
		% of Total	.0%	.0%	.0%	.7%	.7%
	hospital	Count	63	60	81	68	272
		% of Total	23.0%	21.9%	29.6%	24.8%	99.3%
	Total	Count	63	60	81	70	274
		% of Total	23.0%	21.9%	29.6%	25.5%	100.0%

sex of child

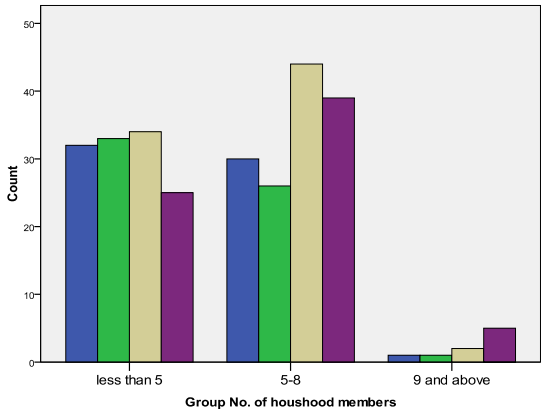
		Statistics	EPDS Scale				Total
			Normal	Mild depressive	Moderate depressive	Severe depressive	
sex of child	Male	Count	31	21	40	37	129
		% of Total	11.4%	7.7%	14.8%	13.7%	47.6%
	Female	Count	31	37	41	33	142
		% of Total	11.4%	13.7%	15.1%	12.2%	52.4%
	Total	Count	62	58	81	70	271
		% of Total	22.9%	21.4%	29.9%	25.8%	100.0%

Twins

		Statistics	EPDS Scale				Total
			Normal	Mild depressive	Moderate depressive	Severe depressive	
twins	yes	Count	0	1	1	0	2
		% of Total	.0%	.4%	.4%	.0%	.7%
	no	Count	63	59	80	70	272
		% of Total	23.0%	21.5%	29.2%	25.5%	99.3%
	Total	Count	63	60	81	70	274
		% of Total	23.0%	21.9%	29.6%	25.5%	100.0%

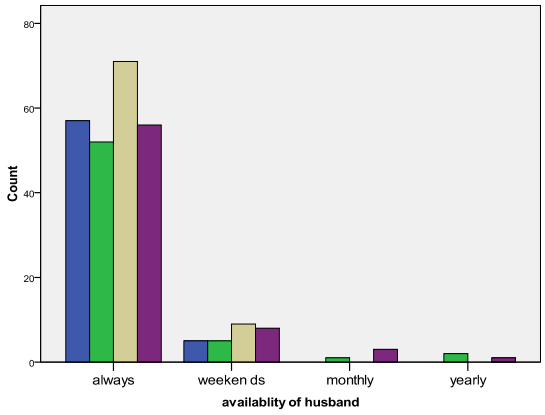
House hold members

No. of household members	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
less than 5	Count	32	33	34	25	124
	% within age	25.8%	26.6%	27.4%	20.2%	100.0%
	% of Total	11.8%	12.1%	12.5%	9.2%	45.6%
5-8	Count	30	26	44	39	139
	% within age	21.6%	18.7%	31.7%	28.1%	100.0%
	% of Total	11.0%	9.6%	16.2%	14.3%	51.1%
9 and more	Count	1	1	2	5	9
	% within age	11.1%	11.1%	22.2%	55.6%	100.0%
	% of Total	.4%	.4%	.7%	1.8%	3.3%
Total	Count	63	60	80	69	272
	% within age	23.2%	22.1%	29.4%	25.4%	100.0%
	% of Total	23.2%	22.1%	29.4%	25.4%	100.0%



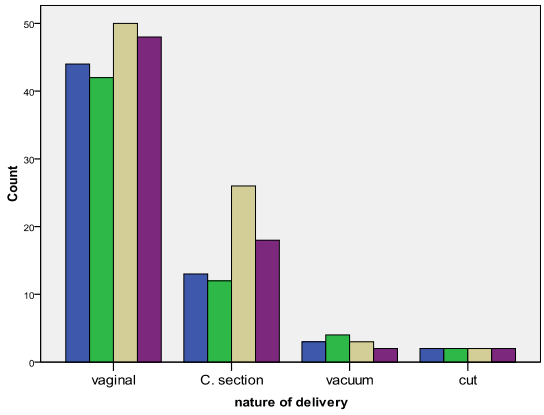
Availability of husband

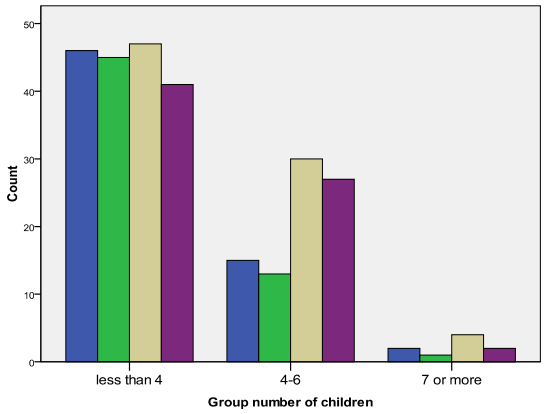
availability of husband	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
always	Count	57	52	71	56	236
	% within age	24.2%	22.0%	30.1%	23.7%	100.0%
	% of Total	21.1%	19.3%	26.3%	20.7%	87.4%
weekend	Count	5	5	9	8	27
	% within age	18.5%	18.5%	33.3%	29.6%	100.0%
	% of Total	1.9%	1.9%	3.3%	3.0%	10.0%
monthly	Count	0	1	0	3	4
	% within age	.0%	25.0%	.0%	75.0%	100.0%
	% of Total	.0%	.4%	.0%	1.1%	1.5%
yearly	Count	0	2	0	1	3
	% within age	.0%	66.7%	.0%	33.3%	100.0%
	% of Total	.0%	.7%	.0%	.4%	1.1%
Total	Count	62	60	80	68	270
	% within age	23.0%	22.2%	29.6%	25.2%	100.0%
	% of Total	23.0%	22.2%	29.6%	25.2%	100.0%

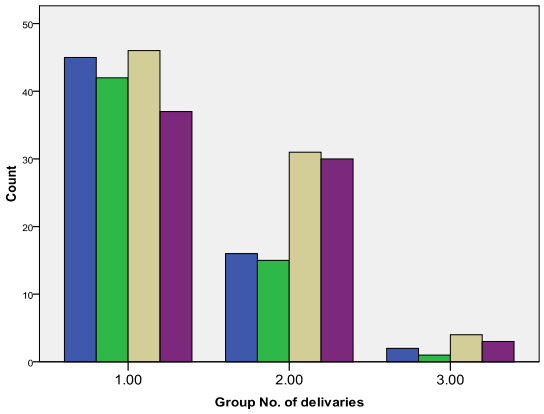


Nature of Delivery

nature of delivery	Statistics	EPDS Scale				Total
		Normal	Mild depressive	Moderate depressive	Severe depressive	
vaginal	Count	44	42	50	48	184
	% within age	23.9%	22.8%	27.2%	26.1%	100.0%
	% of Total	16.1%	15.4%	18.3%	17.6%	67.4%
C. section	Count	13	12	26	18	69
	% within age	18.8%	17.4%	37.7%	26.1%	100.0%
	% of Total	4.8%	4.4%	9.5%	6.6%	25.3%
vacuum	Count	3	4	3	2	12
	% within age	25.0%	33.3%	25.0%	16.7%	100.0%
	% of Total	1.1%	1.5%	1.1%	.7%	4.4%
cut	Count	2	2	2	2	8
	% within age	25.0%	25.0%	25.0%	25.0%	100.0%
	% of Total	.7%	.7%	.7%	.7%	2.9%
Total	Count	62	60	81	70	273
	% within Total	22.7%	22.0%	29.7%	25.6%	100.0%


Count
50
40
30
20
10
0
vaginal
C. section
vacuum
cut
nature of delivery


Count
50
40
30
20
10
0
less than 4
4-6
7 or more
Group number of children


Count
50
40
30
20
10
0
1.00
2.00
3.00
Group No. of delivaries

عنوان الدراسة: مدى انتشار اكتئاب ما بعد الولادة لدى عينة من النساء العربيات في القدس الشرقية وفحص الارتباط بين عدد العوامل الديمغرافية وتطور اكتئاب ما بعد الولادة

إعداد: فتنة شهوان.

إشراف: د. نجاح الخطيب.

الملخـ ـ ـص:

هدفت الدراسة الى تحديد مدى انتشار اكتئاب ما بعد الولادة بين عينة من النساء العربيات في القدس الشرقية وفحص الارتباط بين عدد من العوامل الديموغرافية وتطور اكتئاب ما بعد الولادة.

ولتحقيق أهداف هذه الدراسة تم اجراء دراسة عرضية على عينة من 274 امرأة، جميعهن أمهات لأطفال تتراوح أعمارهم بين (1-12) شهراً تم اختيار عينة البحث من أربعة مراكز أمومة وطفولة في القدس العربية، اثنان حكوميان وآخران غير حكوميين، تمثل هذه العينة 10% من عدد الأمهات الملتحقات في كل من مراكز الطفولة والأمومة المختارة .

تم تحليل الدراسة احصائيا باستخدام برنامج التحليل الأحصائي SPSS استخدمت الباحثة طرقا إحصائية متعددة كالتكرار والنسب المئوية والمتوسطات والانحراف المعياري ومعاملات الارتباط التالية سبيرمان وبيرسون حسب المتغيرات، كذلك كاي سكوير (لايجاد الارتباط بين اكتئاب ما بعد الولادة ومتغيرات الدراسة .تم استخدام الانحدار الخطي المتعدد (Multilinear Regression) لإيجاد العوامل الأكثر تأثيرا على اكتئاب ما بعد الولادة ضمن عينة البحث.

أظهرت نتائج الدراسة أن نسبة انتشار اكتئاب ما بعد الولادة بين المشاركات في عينة البحث كانت (55.11%)منها (25.55%) تمثل اكتئاب شديد و (29.56%) تمثل اكتئاب متوسط .وأظهرت نتائج الدراسة أن هناك علاقة ارتباط بين انتشار اكتئاب ما بعد الولادة وتسعة من العوامل الديموغرافية التي تم دراستها، بالاضافة الى أحد عشر عاملاً من العوامل غير الديمغرافية. بالاضافة إلى ذلك أظهرت الدراسة أن إثني عشر عاملاً تساعد في التنبؤ بوجود اكتئاب ما بعد الولادة وهي: عدد الأطفال، وعدد الولادات، والعمر عند الزواج وعند أول حمل، والرغبة في الحمل، ومنطقة السكنى، المستوى التعليمي للسيدة وللزوج ، ووضع عمل الزوج وعمره وممتلكاته ودخل العائلة

بناء على نتائج الدراسة أوصت الباحثة

بناء على هذه النتائج، فإن توصيات الدراسة تتلخص بما يلي :رفع نسبة الإدراك في المجتمع وبين صانعي القرار لأهمية فترة ما بعد الولادة على الصحة المجتمعية بالإضافة إلى انتشار التعليم بين الشعب هو المفتاح الأساس لمساعدة الناس في إدراك أعراض اكتئاب ما بعد الولادة، وهذا يدفع الى ان تسعى الأمهات الجدد الى طلب المساعدة التي يحتجنها في التعامل مع الاكتئاب .وعلى العاملين في المجال الصحي أن يكونوا على علم بأعراض اكتئاب ما بعد الولادة وأن يناقشوا هذه القضية بشكل منفتح مع النساء الحوامل خلال الحمل وبعد الولادة .وتوصي الباحثة باستخدام وسائل فحص أعراض اكتئاب ما بعد الولادة المتاحة بما فيها مقياس أدنبرة لاكتئاب ما بعد الولادة.